Remarks

To reply the 6-6-2005 Office Action (O.A.), Applicant has amended the claims to overcome the technical rejections and define the invention patentable over the prior art.

Please also see the 10-18-2004 Reply, 4-7-2005 Reply and 5-10-2005 Reply. These Replies have addressed all points raised in the 7-30-2004 O.A., 2-14-2005 O.A., and 4-18-2005 O.A.. respectively.

The Applicant respectfully requests the PTO to consider each one of the points, facts, evidences and arguments in this Reply and all his previous Replies that address and response to all points in the corresponding O.A.

In the O.A. [p.18, L.5-6], Examiner states "As to the arguments that are referenced by letter and number: such are confusing." These are item labels lettering/numbering in a sequence used in 4-7-2005 Reply, e.g., A.1.1, ..., A.3.7, ..., B.1.1, ... B.2, etc.. In response to the Examiner's statement, applicant attaches a table listing these item labels and their corresponding respective page numbers to provide further convenience, even though Applicant has provided some corresponding page numbers in the 5-10-2005 Reply.

On the other hand, it is noticed that Examiner with the understanding to this numbering system used in 4-7-2005 Reply states "the lettering/numbers correspond to Applicant's" [4-18-2005 O.A. p.2, L.5-6], but he addressed only a part of the 4-7-2005 Reply from A.1.1. to A.3.7, and thus failed to comply with MPEP 707.07(f) Answer All Material Traversed – "Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it". In the 5-10-2005 Reply, applicant specifically points out the errors in the previous O.As.

The following Remark is to address each point raised in the 6-6-2005 O.A. Applicant again respectfully requests the PTO for reconsideration of the application as a whole.

The above amended claims are submitted to be patentable over the art of record for the following reasons.

I . Response to the Claim Rejections – 35 USC 112

I.1. Regarding the O.A. comment on "data sets" in Claim 26 and 28

The O.A. comments "Examiner could find no support for the 'data sets' of lines 14, 16, 18, 20, 21 and 24 – either explicit or implicit. Nor is there any support for their use as claimed, for example the preselected nominal value for the data sets." [O.A., p.2, L.20-22]

First, "data sets" was proposed in the 7-30-2004 O.A. [p. 4, L.18-21] that "It is noted that it appears that Applicant intends to claim two different sets of outer diameters ...."

During the 8-30-2004 interview, "The applicant expresses his thanks to the Examiner for his commenting on Claim 10" and applicant states "This comment has been taken into all related amending." [Record of Substance of Interview of 8-30-2004, p.2, L.27, 31].

In the Specification, applicant teaches the double bare fiber measurements many times, e.g., paragraphs 0043 and 0044. Also, please refer to the invention figures. It is clear that the present invention, as the Specification states and teaches, has two different measurement devices located at two different locations for the bare fiber measurements that makes two different measurement data sets, which are just follow the Examiner's opinion in the 7-30-2004 O.A., and two preselected outer diameters for two measurement data sets from these two measurement instruments, respectively.

On the other hand, applicant has also amended Claims 26 and 28 to overcome the rejection as follows:

Claim 26: "providing a control system with the ~~different~~ measurement data ~~sets~~ from all these measurement devices respectively at the different locations,

wherein said control system

has a first preselected nominal value for the ~~first~~ measurement data ~~set~~ from the first measurement location, and a second different preselected nominal value that is less than the first preselected value for the ~~second~~ measurement data ~~set~~ from the second measurement location,

calculates the deviations of ~~the two bare fiber measurement data sets from their respective preselected values~~ the measurement of the first measurement location from the first

preselected nominal value, and the deviation of the measurement of the second measurement location from the second preselected nominal value, and

dynamically controls a fiber drawing speed and a preform feeding speed for the drawing process based on the calculated deviations ~~of the two bare fiber measurement data sets from their respective preselected values~~;" and deleting lines 14-15 of Claim 26;

Claim 28: "in addition to the ~~different measurement data sets~~ calculated deviations of the bare fiber".

Thus, this amendment has overcome the rejection.

I.2. Response to the comments on Claim 21, Lines 12 and 17 [O.A., p.3, L.9-11]

Applicant has amended Claim 21 to obviate the rejection as follows:

"the control process" has been amended by "the control system"; and

"the preform outer diameter and shape" has been amended by "the preform outer diameter or shape" in claim 21.

I.3. Response to comment on Claim 21, Line 12, regarding "the group comprising", but not "consisting" [O.A., pp.3-4]

Claim 21 has been amended to obviate the objection as follows:

"wherein the control process controls at least one member of the group comprising:

a feeding speed control of said preform, a drawing speed control of said optical fiber, and a tension control of said optical fiber"

is replaced by

"wherein the control system controls feeding speed of said preform and drawing speed of said optical fiber".

I.4. Response to the comments on the language "robustly", "robust performance", "robust diameter-controlled" and "robust quality"

The O.A. [p.4] comments that "The language 'robustly', 'robust performance', 'robust diameter-controlled' and 'robust quality' are 'words of degree' which are imprecise unless a definition or guidance has been set forth in the specification or the term is otherwise well known in the art."

The term "robust control", "robust performance", "robust quality" and robustly" have been well frequently used since late 1980s, especially in 1990's and now.

Especially, as Applicant pointed out many times in the previous Replies, Applicant clearly defines and specifies the robust control and robust performance of his invention in the Specification as cited in the Claims as follows:

Claim 21: "robust performance of said process and robust quality of said optical fiber *against deviations of the preform outer diameter or shape at different locations and against deviations of various preforms, making a robust diameter-controlled optical fiber*" [emphasis added].

Specification, paragraph 0049: "Thus, it is a kind of robust control in face of fluctuations of the preform outer diameters and fluctuation of the bare fiber outer diameters due to various factors including the furnace temperature fluctuation". [emphasis added]

Paragraph 0080: "Then, all these measured data are combined into an overall robust control system to form a fiber drawing speed control signal for capstans 13 and a preform feeding speed signal for the preform feeding mechanism 1, respectively." [emphasis added]

Paragraph 0083: "The robust control system obtains the feedback signals from these diameter monitors and controls the fiber drawing speed and the preform feeding speed for producing *robustly diameter controlled optical fibers*." [emphasis added]

Paragraph 0096: "As described above, according to the present invention, the absolute value of the outer diameter of the optical fiber can be not only measured correctly but also robustly controlled, whereby the optical fiber with better accuracy in its size is produced in face of fluctuations of the preform diameters, fluctuations of the furnace conditions, various disturbances and parameter perturbations, especially in a high productivity situation with increasing drawing speed, enlarging preform size and raising high performance of optical fiber during the optical fiber drawing process. *Thus, this present invention provides robust diameter-controlled optical fibers during optical fiber drawing process*." [emphasis added]

Thus, applicant respectfully requests the PTO to allow the above terms "robust control", "robust performance" and "robust diameter-controlled" that are also well used, defined and specified in both Specification and claims.

I.5. Response to the comment on last 4 lines of claim 21 [O.A. p.4, L.17-22]

(1) In Claim 21, "fiber drawing process will be robustly controlled" has been amended by "fiber drawing process is robustly controlled". [emphasis added]

(2) In last 4 lines, Claim 21 recites, "against deviations of the preform outer diameter or shape at different locations and against deviations of various preforms".

The deviations are "deviations of the preform outer diameter or shape at different locations and against deviations of various preforms". It is not the fiber diameter deviations. There is no confusion.

Thus, the amendment and explanation obviate the rejection.

I.6. Response to the comment on Claim 22 "no antecedent basis for 'the deviations' and 'the preform diameters or shape'" [O.A. p.5, L.1-2]

Claim 22: "the deviations" and "the perform diameters or shape" has been modified to "the deviation" and "the perform diameter or shape", respectively. Thus, the rejection is overcome.

I.7. Response to the comment on Claim 24 regarding the antecedent basis

The O.A. [p.5, L.3-5] comments that "Claim 24 there is confusing or missing antecedent basis for 'their respective deviations', 'the respective nominal values', and 'said optical fiber drawing process control'."

Claim 24 has been amended as follows:

"~~their respective deviations from their respective predetermined nominal values, and their respective nominal values,~~ the deviation of the preform measurement from the predetermined nominal preform value, the deviation of the fiber measurement from the predetermined nominal fiber value, the predetermined nominal preform value and the predetermined nominal fiber value".

Thus, the above amendment obviates the rejection.

I.8. Response to the comment on Claim 25 regarding the antecedent basis

The O.A. [p.5, L.6-8] comments that "Claim 25: there is missing or confusing antecedent basis for 'said nominal preform value', 'said nominal fiber value' and 'its deviation from the

predetermined nominal preform value' (lines 7-8)."

Claim 25: "said nominal perform value" and "said nominal fiber value" have been modified to "said predetermined nominal perform value" and "said predetermined nominal fiber value", respectively.

The phrase "its deviation from the predetermined nominal perform value" is correct because Claim 25 is a dependent claim of Claim 21 in which "a predetermined nominal perform value" is stated.

Thus, the amendment and explanation obviate the rejection.

I.9. Response to the comment on "locations" and "positions" in Claim 26 [O.A. p.5, L.9-11]

Applicant has amended "position" by "location", and "positions" by "locations", respectively in claim 26. Thus, the rejection is overcome.

I.10. Response to the comment on Claim 30 regarding "no antecedent basis for 'the measurement data' (line 8)" [O.A. p.5, L.12-14]

In Claim 30, "the measurement data" has been amended by "the measured preform outer diameter and the measured optical fiber outer diameter".

Thus, the amendment obviates the rejection.

I.11. Response to the comment on Claim 32 regarding "no antecedent basis for 'said control method' line 5 and the relevance of the '(final)'" [O.A. p.5, L.15-18]

Claim 32: The word "(final)" has been deleted.

Claim 32 is a dependant claim of Claim 30, and "The control method in claim 30" is in line 1 of claim 32.

Thus, the above amendment and explanation obviate the rejection.

I.12. Response to the comment on the term "based on" [O.A. pp.5-6]

Applicant already states in item C.3.6 of 5-10-2005 Reply [p.34]:

> "The term 'base on' is a valid term and introduces specific calculations and limitations in the claims. This term has also been widely and well used in many claims of other patents,

including Yoshimura 5073179 and Kenmochi 6178778."

For example, Yoshimura [claim 1] recites that "the drawing being carried out at a drawing rate that is controlled *based on* a deviation of the measured diameter from a preselected outer diameter".

Kenmochi [claim 1] recites that: "adjusting the value a *based on* that measured diameter".

They are specific because they are Not based on everything else, because they are based on " a deviation" or "that measured diameter", and because they are Distinct from each other.

The term "based on" is a commonly used term, and well defined in common sense. For example, the term "based on" does Not appear in Yoshimura's Specification, but is in Yoshimura's Claim.

Thus, how does Examiner explain his statement "Such a definition would have been made in the specification when the application is original filed" to Yoshimura's patent which is examined by the same Examiner?

However, on the other hand, applicant uses the term "based on" in the Specification many times, e.g., paragraphs, 0043, 0044, 0049, 0086, in which the term "based on" is used as a commonly used term.

Examiner has a wrong concept as he stated in the 2-14-2005 O.A. that "As to the limitations that refer to the control being 'based on' diameters, deviations, etc. Such is inherent. Everything is inherently 'based on' everything else. ... ... Every parameter essentially is inherently 'based on' every other parameter." [p.10, L.7-13]

However, the above statement is totally wrong.

Applicant's 5-10-2005 Reply [pp.34-35] recites as follows:

"However, this [O.A. above] statement is incorrect because Such Is Not Inherent.

For the given example, it should be also noticed that to determine the preform mass only by the diameter is not enough. Furthermore, regarding the given example, people would like to ask the following questions:

What should be based on, 'the amount of mass', or weight, or 'diameters', or 'deviations', or 'everything else'? Which one?

What is to be controlled based on 'everything else', the furnace temperature distribution, or the drawing speed, or the feeding speed, or 'everything else'?

What is control law or rule, i.e., principle in the process control, or 'everything else'?

IT IS TOTALLY NOT INHERENT.

Control engineers need to do deep investigation and face challenging problems, e.g., in this complex optical fiber drawing process control in order to answer these questions. Different solutions may make totally different process control methods.

The present invention discloses the novel, useful and unobvious optical fiber drawing control methods in the specification and claimed in Claims 30-34.

If it were inherent, the cited references patents would not have been issued as published. This incorrect statement would reject these issued and cited reference patents.

However, Applicant highly honors these cited patents because it is not obvious and not inherent. They teach different measurements and make different controls. Applicant also discloses and claims different new, useful and unobvious measurement methods, control methods and control principles over the prior art.

Here the important key is to identify what is based on. It is entirely not inherent."

As cited above, one example can show how important and different it will be for what to be based on. Yoshimura 5073179, claim 1 claims "... the drawing being carried out at a drawing rate that is controlled based on a deviation of the measured diameter from a preselected outer diameter" [emphasis added]. Because it is based on a deviation, then a comparison operator (Fig. 2, Yoshimura) is needed, and a subtraction operation on the measurement from a preslected diameter is executed. If it were based on the measured diameter, then that comparison operator would not be necessary and that subtraction operation would not be executed. This example clearly shows that the term 'based on' or what to be based on is not inherent, but introduces significantly different calculations and limitations.

As explained above and stated in 5-10-2005 Reply [p.35, L.26-29], "Really, the phrase 'based on' introduces a specific control law or regulation for a control system and a control process. What to be based on for a control and what to be controlled based on that are very important issues in automatic control area, including process control, especially for very complex processes

including optical fiber drawing process." [emphasis added]

As to the 6-6-2005 O.A. statement [p.5, L.19-20] "The term 'based on' is indefinite as to its meaning and thus makes the claims indefinite", Applicant would ask Examiner how he allows Yoshimura 5073179 to use "based on" in claim 1.

However, if people read the above recitation in 5-20-2005 Reply [pp.34-36], it is clear that

(1) The term "based on" is allowed to be used in the issued US patents, especially including the one examined by the Examiner and cited as the reference by the Examiner;

(2) The O.A. fails to address the important part, i.e., "What to be *based on* for a control and what to be controlled based on that are very important issues in automatic control area, including process control, especially for very complex processes including optical fiber drawing process". The difference of these important issues makes distinct controls and features of the inventions.

(3) The applicant's 5-10-2005 Reply statement (cited from 4-7-2005) is related to claims regarding control, and it states well known knowledge of "based on" language as commonly used in the art.

(4) Thus, the 6-6-2005 O.A. comment [pp.5-6], "It appears that applicant is newly defining the scope of 'based on'", is incorrect again.

(5) Examiner's concept, that "As to the limitations that refer to the control being 'based on' diameters, deviations, etc. Such is inherent. Everything is inherently 'based on' everything else. ... ... Every parameter essentially is inherently 'based on' every other parameter." [2-14-2005 O.A. p.10, lines 7-13], is totally wrong.

(6) Furthermore, applicant would like to ask Examiner how to explain his approval of Yoshimura 5073179 Claim 1 "the drawing being carried out at a drawing rate that is controlled based on a deviation of the measured diameter from a preselected outer diameter". [emphasis added]

The same term "based on" is used in Yoshimura 5073179 Claim 1.

Here, the same term "based on" is used in the claims of the present invention, however, what is based on is totally different from the prior art. Thus, the present invention has different and

patentable features over the other inventions in the art.

What is "based on" and should be "based on" is a challenging topic in the control area.

Kenmochi 6178778 Claim1 recites: "wherein a time between measuring the diameter of the synthetic quartz ingot at a point at which the ingot is almost completely drawn and adjusting the value a based on that measured diameter is controlled to be not less than the distance between the midway point and the point at which the ingot is almost completely drawn divided by an average drawing speed".

For further examples, other US patents use "based on" language as listed below:

US 5,757,820 (1998):

Claim 1: "...determining whether the plurality of interconnections match the interconnect topology model based on the results of applying the plurality of test patterns".

Claim 4: "dividing the probe step of step (B) into disjoint subsets based on the probe and result sets in steps (D) and (E)."

US 6,820,247 (2004):

Claim 1: "A method for constructing a global interconnect model .... stitching the discrete models together based on the global abutment points to construct the global interconnect model".

Claim 15: "the method comprising: .... and stitching the discrete models together based on the global abutment points to construct a global interconnect model."

Claim 29: "... means for stitching the discrete models together based on the global abutment points to construct a global interconnect model."

US 6,802,049 (2004):

Claim 8: "c) computing a placement cost based on a number of bends in the connection graph."

Claim 9: "The method of claim 8 further comprising specifying a placement based on the computed placement cost."

Claims 11, 15 and 16: "b) computing the placement cost also based on the length of the connection graph.".

Claim 12: "c) computing a placement cost based on a number of bends in the connection graph."

Claim 13: "The computer readable medium of claim 12, wherein the computer program further comprises sets of instructions for specifying a placement based on the computed placement cost."

Claim 17: "The method of claim 16 further comprising specifying a placement based on the computed placement cost."

US 5568150:

Claim 5: "The pulse compressor of claim 3, wherein tap weights of taps in said tap delay line are determined based on a frequency response of said analog intermediate frequency filter."

Claim 8: "The pulse compressor of claim 6, wherein said tap weights are determined based on a frequency response of said analog intermediate frequency filter".

Thus, the examiner's rejection on the term "based on" should be withdrawn.

I.13. Response to the O.A. comment on p.36, line 17 "historical measurement data"

The O.A. [p.6] states "Page 36, line 17: it is argued that 'historical measurement data' is really time lead or lag measurement. Examiner could find no support for such a definition/interpretation. Applicant has not pointed out the support for such. It is deemed that the record now confusing as to what is meant by the claim language."

The Specification recites as follows in paragraphs [emphasis added]:

"0039 In order to solve the time lag problem and the highest accurate measurement requirement for optical fiber, the present invention keeps a conventional outer diameter measurement at a safe position just immediately below the furnace. The reason for this measurement is that this measurement has the smallest time lag among any possible measurements below the furnace in order to use this measurement signal for the fiber drawing process control in face of the temperature fluctuation, the humidity fluctuation and dust particles in the furnace.

....

0044 In the present invention, one choice of control law can be, but not limited to, based on a deviation of a final measured diameter of the bare fiber coming into the coating step from

the specified outer diameter, a deviation of a measured diameter of the bare fiber leaving from the furnace from a preselected outer diameter, and a deviation of a measured outer diameter of the preform coming into the furnace from a preselected outer diameter. It may also be based on the fluctuation data from the current measurements in the above-mentioned diameter measurement monitors and the ones as certain period measurement history data.

....

0078 In FIG. 1, monitor 10 for the preform is located at a safe position immediately above the furnace 3 in order to reduce the time lead; monitor 20 for the bare fiber is located at a safe position immediately below the furnace 3 in order to reduce the time lag; and monitor 40 for the finished bare fiber is located at a safe position immediately above the coating device in order to provide very high accurate measurement of the outer diameter for the finished bare fiber".

It is clear from the above citation from the Specification that the "history data" in the above-mentioned diameter measurement monitors are the time-lead or time-lag data.

Claim 34 recites: "The control method as claimed in Claim 33, wherein the control signals are further based on historical measurement data of the preform and the bare fiber being drawn over a period; whereby ... robust quality of the fiber further against the fluctuations of the diameters, time-lag and time-lead of said measurements corresponding to the heating and melting stage".

Claim 36 recites: "The control method as claimed in Claim 35, wherein the control signals are further based on historical measurement data of the preform and the bare fiber being drawn over a period; whereby ... robust quality of the fiber further against the fluctuations of the diameters, time-lag and time-lead of said measurements corresponding to the heating and melting stage".

In view of the above cited support from the Specification and recitation of Claims 34 and 36, the rejection on "historical measurement data" should been withdrawn.

II. Response and Rebuttal to the Claim Rejections – 35 USC 103

In judging obviousness or non-obviousness, the Law 35 USC 103(a) and the Rule *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966) must be followed, as summarized as follows:

35 USC 103(a):

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Supreme Court statement in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966):

> "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims as issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter to patented. As indicia of obviousness or nonobviousness, these inquires may have relevancy ...
>
> This is not to say, however, that there will not be difficulties in applying the nonobviousness test. What is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context. The difficulties, however, are comparable to those encountered daily by the courts in such frame of reference as negligence and scienter, and should be amenable to case-by-case development. We believe that strict observance of the requirements laid down here will result in that uniformity and definitiveness which Congress called for in the 1952 Act."

As pointed out in 5-10-2005 Reply [p.20], Examiner's 7-30-2004, 2-14-2005 and 4-18-2005 Actions fails to follow 35 USC 103 and the requirements laid down in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966). No four inquiry steps are in these Examiner's Actions.

For example, in 4-18-2005 O.A. [p.2, L.26], Examiner states "The fact that the references have different scope and content is not deemed very relevant", and in the 6-6-2005 O.A. [p.19, L.13-15], Examiner again states: "As to the arguments regarding the combined of Yamamura and

Urruti, it is argued that Yamamura is of different scope. This is not (by itself) very relevant. No two patents are exactly of the same scope – thus every two patents are of different scope."

Moreover, as to be pointed out below in the following items and sections, Examiner's Action

- fails to determine the scope and contents of Yamamura in inquiry (1) [p.15];
- fails to ascertain the differences between the prior art and the claims in issue by omitting important key differences in inquiry (2) [pp.8, 11, 15];
- fails to prove the subject matter as a whole would have been obvious at the time the invention was made to a person of ordinary skill in the pertinent art in inquiry (3) [pp.8, 12, 15-16],
    - because of no motivation from the references and the prior art knowledge,
    - because the proposed combination of Urruti and Yamamura is inoperable and has no expectation of success,
    - because the proposed modification of the primary reference destroys the intended operation of the primary reference's invention,
    - because the references teaches away,
    - because even as modified or combined, the resultant teachings still omit one or more of the applicant's claimed features,
    - because the present invention is not automating a reference or a combination of the references,
    - because the proposed modification or combination is only through hindsight from the present invention in view of the fact of a series of issued patents that have no any teaching or suggestion or motivation to the present invention,
    - because examiner's Actions distorts the references and the facts;
- fails in inquiry (4) [pp.8-9, 12,16] to evaluate evidence of secondary considerations that has been submitted by Applicant in 10-18-2004 and 4-7-2005 Replies.

Thus, examiner's Actions fail to follow the Law, The Supreme Court statement in *Graham*

***v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966) as listed above, a series of court decisions, and the MPEP and Office policy as listed below (in several sections):**

"Office policy is to follow Graham v. John Deere Co. in the consideration and determination of obviousness under 35 U.S.C. 103. As quoted above, the four factual inquires enunciated therein as a background for determining obviousness are as follows:

(A) Determining the scope and contents of the prior art;

(B) Ascertaining the differences between the prior art and the claims in issue;

(C) Resolving the level of ordinary skill in the pertinent art; and

(D) Evaluating evidence of secondary considerations."

In the steps for determining obviousness or non-obviousness, examiner's 6-6-2005 Action still fails to follow the above Rules and Policy, and still distorts the references, and still is unfair to the present invention application, and thus nagativates the patentability as specifically pointed out below. The following parts shall describe it in details.

II.1. Claims 21-22 and 24-25 are Unobvious and Patentable Over Harding 4793840. The examiner's action is in error and his grounds for rejections are in error because his action and grounds distort the reference, are against the facts, and do not follow the 35 USC 103 and Rule in *Graham v. John Deere*, as pointed out below.

II.1.1. The O.A. fails to give the correct scope and contents of the prior art, i.e., Harding 4793840, that is required by the Rule and the Office Policy.

- **The O.A. just cuts a piece and words from Harding 4793840 and distorts the Harding's contents, control principle, motivation and work.**

The O.A. [p.7, L.15] states "Measuring outer diameter or shape step: See col.3, lines 10-11."

However, Harding col.3, lines 10-11 is not a whole sentence and is just a piece of a sentence. Harding's that full sentence is at lines 7-13.

The fact is that the whole sentence [col.3, L.7-13] states "The capstan speed however is greater than the nominal or preset speed which has been calculated beforehand based on data decrived from an earlier measurement on the preform e.g. average diameter, length and

weight, and we have found that it is important not to deviate by more than ±5% of preset values."

More important is the fact that the O.A. further fails to determine an important content in a sentence, col.3, lines 6-7 which represents Harding's process principle regarding preform feeding rate. That sentence is just before the above cited sentence [col.3, L7-13].

That is "The preform will be feeding glass at a particular rate, i.e. so many h[k]ilograms per hour" [Harding col.3, L.6-7].

The above cited sentence reflects Harding's motivation for an earlier measurement on the preform average diameter and how Harding uses this earlier measurement – i.e., for pre-calculate the nominal or preset capstan speed (i.e., fiber drawing speed) only.

- **The O.A. wrongly states** "Also, since Harding does the same thing that Applicant does, Harding should also have an equally robust process" [p.7, L.25, p.8, L.1]. **Thus, the O.A. not only distorts the reference Harding, but also distorts the present invention, because Applicant's process distinctly and patentably differs from Harding's process, such as claimed in Claims 21-22 and 24-25 in view of applicant's figures 1-8 and Harding's figure.**

- The O.A. [p.7, L. 20-21] wrongly states "The control at lines 12-14 (of Applicant's line 21): it is clear from Harding's sole figure that both of the claimed control speeds are disclosed."

  However, Examiner clearly fails to determine Harding's control principle and method that are key important to control/manipulate Harding's optical fiber drawing process, which are totally different from the present invention in view of the features as claimed in Claims 21-22 and 24-25 and Harding's sole figure, e.g., Claim 21 recites:

  "providing a control system with *the measured outer diameter or shape of said preform*, the measured outer diameter of said optical fiber, a predetermined nominal preform value and a predetermined nominal fiber value for controlling said drawing process,
  wherein the control system controls feeding speed of said preform and drawing speed of said optical fiber"

- **Applicant respectfully requests Examiner to determine the following scope and contents of the prior art as required according to the Rule and the Policy:**

(1) How does Harding control the preform feeding speed and fiber drawing speed?

(2) Does Harding's invention have a preform monitor to measure the preform in his process and in his sole figure?

(3) Does Harding's invention adjust the preform feeding speed and the fiber drawing speed based on the preform measurement?

(4) Does Harding's process control the preform feeding speed and the fiber drawing speed based on the deviation of the preform measurement from a predetermined preform nominal value?

- **Please see the above item I.4** [pp.14-15] **to respond to the O.A.** [p.7, L.22-23] **regarding "robust"-type limitation.**

- **The O.A.** [p.7, L.23-25; p.8, L.1-3] **wrongly states** "It is deemed that the Harding's process had robust control and robust quality compared to the standards of 1986 (the year of Harding's invention): see col. 1, lines 27-29. Also, since Harding does the same thing that Applicant does, Harding should also have an equally robust process. As to the deviations: see col.2, lines 56-58 and col. 3, lines 1-20 which reasonably suggest that deviations in preform are not detrimental to the process." [emphasis added]

The above O.A. statements are totally wrong and in errors because of the following objective evidence, facts and reasons:

(1) Harding's Specification Never mentions "robust control" and "robust performance".

(2) Harding's col. 1, lines 27-29 is "It is an object of the present invention to provide an improved arrangement for maintaining precise control of the optical fibre being drawn."

(3) Harding's process lacks the following feature steps as claimed in Claim 21, thus Harding does not do the same thing that Applicant does in applicant's process:

a. "measuring either the outer diameter or shape of a preform";

b. "providing a control system with the measured outer diameter or shape of said preform , the measured outer diameter of said optical fiber, a predetermined nominal preform value and a predetermined nominal fiber value for controlling said drawing process;"

c. "wherein the control process system controls feeding speed of said preform and drawing speed of said optical fiber" from the above providing.

(4) The robust control and robust performance described in the present invention are clearly stated in Claim 21 as recitation: "robustly controlled with robust performance of said process and robust quality of said optical fiber against deviations of the preform outer diameter or shape at different locations and against deviations of various preforms, making a robust diameter-controlled optical fiber." [Claim 21, lines 15-19]

(5) Harding's process does not have the robust performance as recited above because of his lack of measuring the preform in the process, providing the preform measurement for the control, and the corresponding control as claimed in Claims 21-22 and 24-25.

(6) The Examiner's rejection on that "Harding's process had robust control and robust quality compared to the standards of 1986 (the year of Harding's invention): see col. 1, lines 27-29" is wrong because the robustness in face of deviations of the preform is an advantage of the present invention over Harding.

Here, the examiner's Action has a mistake on the robustness specified in Claim 21 and does not recognize knowledge of robustness and its importance in modern control and system areas. Claim 21 recites:

> "whereby said optical fiber drawing process is robustly controlled with robust performance of said process and robust quality of said optical fiber against deviations of the preform outer diameter or shape at different locations and against deviations of various preforms, making a robust diameter-controlled optical fiber".

This specific robustness is lacked by the prior art including Harding's process, because their processes lack measuring preform and a control principle based on the measured preform value and a predetermined nominal preform value.

(7) The fact is that the deviations in preform are detrimental to the process if the process has no measuring preform diameter or shape and the corresponding control as recited in Claim 21.

The Examiner's statement "As to the deviations: see col.2, lines 56-58 and col. 3, lines 1-20 which reasonably suggest that deviations in preform are not detrimental to the

process" [O.A. p.8, L.1-3] is also against examiner's 2-14-2005 Action, p.6, last two lines, regarding Yoshimura.

(8) The robustness against deviations of the preform outer diameter or shape at different locations and against deviations of various preforms, making a robust diameter-controlled optical fiber, is new advantage of the present invention. The advantage of that and new control principles urge to warrant issue of a patent over Harding, Yoshimura and the prior art.

- **According to the examiner's logic to the present invention, how to explain the issue of Yoshimura 5073179 which is examined by the same examiner?**

On the other hand, Applicant highly honors and respects Yoshimura's invention by moving the bare fiber diameter monitor position downward from Harding's process.

It is a well known fact, how to locate measurement monitor location is a challenging problem, especially in a complex process control, such as an optical fiber drawing process.

At the same time, Applicant again respectfully request the PTO to recognize and honor the present invention patentably distinguished from the prior art.

II.1.2. The O.A. fails to ascertain the major differences between the prior art and the claims at issue. In addition, the O.A. distorts the reference and is against the fact again.

- The O.A. [p.8, L.5-8] states:

"Harding does not clearly disclose the providing step: however, col. 3, lines 5-12 discloses that various measurements/calculations are made.
This is the only difference." [emphasis added]

However, the above O.A. statements are incorrect and distort the reference and are against the fact because the following facts and reasons:

(1) Harding's process lacks both "the measured outer diameter or shape of said preform" and "a predetermined nominal preform value" as claimed in Claim 21.

(2) What Harding described in his Specification regarding an earlier preform measurement

has been recited as above in II.1.1. It is an average diameter, length and weight. The average diameter is at most or best equivalent to a nominal preform value. Regarding the preform, Harding's process has only an average diameter, length and weight.

(3) The O.A. fails ascertain the important difference between an average diameter value of a preform and "the outer diameter or shape of a preform" in the respective processes.

(4) The average diameter hides variations and deviations. However, variations and deviations are inevitable.

(5) The fact is that variations and deviations of the preform diameter or shape affect the optical fiber drawing process, especially the process stability.

(6) What Harding uses "an earlier measurement" "average diameter" of the preform for is to calculate beforehand "a nominal or preset speed" of the fiber drawing speed [refer to Harding col.3, L.6-13].

(7) Harding's process lacks the key steps listed in above II.1.1 (3) [pp.28-29] recited from Claim 21.

It is clear from Harding's sole figure and Specification that his process does not have a measuring preform diameter or shape step for the process control. What his process required from "an ealier measurement on the preform e.g. average diameter, length and weight" before the process control is only for a nominal or preset fiber drawing speed.

- **The 10-18-2004 Reply clearly has a brief summary of the references and differences of the present invention** [pp.13-15]**. The references include Harding as follows:**

  "Harding (GB) US 4,793,840 teaches optical fiber manufacture in which only one fiber diameter monitor 9 measures the optical fiber diameter and that monitor location refers to their British patent application No. 8323692 (GB 2146321). This only diameter measurement monitor 26 in GB 2146321, i.e., monitor 9 in Harding locates below and close to furnace 24 in GB 2146321A, i.e., furnace 3 in Harding, as shown in Fig. 1 in GB 2146321. The Harding's optical fiber manufacture method has no above substantial physical features (a)-(k) of the applicant's present invention." [p.14, also refer to p.13]

- **Examiner also fails to ascertain further differences in Claims 22, 24 and 25, in addition to Claim 21, from Harding's as recited as follows**:

  - **Claim 22** recites:

    "measurement of said preform outer diameter or shape is on-line by a measurement monitor device;

    the measured diameter or shape is on-line real-time fed to said control system; and said control system generates a control signal based on the measured preform diameter or shape, its deviation from the predetermined nominal preform value, and said nominal preform value".

  - **Claim 24** recites:

    "generating control signals based on the preform measurement, the fiber measurement, the deviation of the preform measurement from the predetermined nominal preform value, the deviation of the fiber measurement from the predetermined nominal fiber value, the predetermined nominal preform value and the predetermined nominal fiber value, for said optical fiber drawing process control".

  - **Claim 25** recites:

    "said control system generates control signals to control the drawing speed of said fiber from the melting preform and the feeding speed of said preform into the furnace, based on the measured preform outer diameter or shape , its deviation from the predetermined nominal preform value, said predetermined nominal preform value, the measured optical fiber outer diameter, its deviation from the predetermined nominal fiber value, and said predetermined nominal fiber value".

  - **These recited key features are the differences that are totally Foreign not only to Harding and references in the prior art but also to knowledge of ordinary skill at the time the present invention was made.**

II.1.3. The O.A. fails to follow the Resolutions cited in MPEP for resolving the level of ordinary skill in the pertinent art, and <u>fails to</u> "<u>present a convincing line of reasoning as to why the artisan would have found the claimed invention to have</u>

been obvious in light of the teachings of the references" as required in *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985) **by the MPEP.**

- **Examiner's statement in the O.A.** [p.7, L.23-25; p.8, L.1-3] **shows that there is no any motivation for ordinary skill to do any modification on the reference further.**

  Examiner [p.7, L.25; p.8, L.1-3] clearly states "Also, since Harding does the same thing that Applicant does, Harding should also have an equally robust process. As to the deviations: see col.2, lines 56-58 and col. 3, lines 1-20 which reasonably suggest that deviations in preform are not detrimental to the process." [emphasis added]

- For inquiry (3), the O.A. states only "The court have routinely held that 'ordinary skill' includes the ability to automate a manual process."

- **The fact is that the claimed present invention is totally Not a case of just "automating a manual activity" of the references. Thus, the O.A.** [p.8, L.10-20] **wrongly cites a citation which is Not relevant.**

- **Moreover, there is no motivation from the reference teaching or suggestion or in the knowledge generally available to the ordinary skill in the pertinent art to modify the reference to achieve the claimed invention.**

- **Furthermore, the prior art reference (or references when combined) does Not teach or suggest all the claim limitations.**

- **Thus, the examiner's Action fails to comply with the MPEP and the court decisions.**

MPEP 706.02(j) states the followings:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria.

"To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

- From the Examiner's statements in O.A. [p.7, L.23-25; p.8, L.1-3] as cited above and in II.1.2 [pp.30-32], **it is very clear that the reference and the ordinary skill have no any motivation to do modification to achieve the claimed invention "in light of the teachings of the references", including Harding and Yoshimura and Urruti.**

- **Examiner's Action clearly fails to follow the MPEP 706.02(j), *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991), *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985), and the Supreme Court statement in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966).**

II.1.4. The O.A. fails to consider objective evidence present in the application indicating nonobviousness.

- **Examiner** [p.9, L.3-4] **incorrectly states** "Applicant has not provided any objective evidence. All evidence appears to be subjective."

- **Applicant has provided a lot of objective evidences to show non-obviousness in the 10-18-2004, 4-7-2005 and 5-10-2005 Replies during the application process.** (see below)

- **However, Examiner has not considered them as required by the Rules and Office Policy.**

- **Here, applicant firstly summarizes them briefly as follows, then provides new objective evidence indicating non-obviousness over Harding because Examiner proposes reference Harding to Claims 21-22 and 24-25 regarding the 103 just in 6-6-2005 O.A.**

- **In 10-18-2004 Reply**:

[10-18-2004, p.20] A.3. "**The proposed modification *perform* *the Pilkington process with the drawing down of the preform-and-tube assembly into optical fiber*** **is inoperative and destroys the intended operation and the reference goal – productivity and 'greatest**

efficiency', ..."

[10-18-2004, p.22] A.5. "... **It is noticed that Pilkington clearly does not teach a step of measuring the outermost diameter of final preform in his whole specification, including its page 3, lines 13-14, 25-31 and page 7, lines 1-8**."

[10-18-2004, p.23] A.6. "It has been more than decades passed from an early optical fiber drawing process to this present invention. The optical fiber drawing process control is a very complex and large-scale control. A lot of professional skilled people have tried to solve many problems in the process. **A lot of patents regarding the measurements in the fiber drawing process have been issued in the world. However, the fact is that no the prior art references teach measuring the outer diameter of the preform in the fiber drawing process and utilizing the dynamic outer diameter of the preform in the fiber drawing process. Thus, this fact shows that the differences of the subject matter of claim 21 from the prior art including Pilkington as a whole is unobvious at the time the invention was made to a person having ordinary skill in the art in the fiber drawing process.**"

[10-18-2004, p.24] IV. A.7. "... **Even if Pilkington method were performed by a control system, this assumed control method would still be clearly different from the present invention control method and substantially lack of the present invention control method and measurement as follows:** ..."

[10-18-2004, p.27] VI. B.2. "Moreover, **the novel control principle in the present invention is entirely foreign to Pilkington since, as stated above, his process and "control system" do not apply this novel and unobvious control principle formulated based on the measured perform diameter or geometrical parameter, its deviation from a predetermined nominal value, and said nominal value, as disclosed in the present invention specification and claimed here by claim 22.**"

[10-18-2004, p.29] IV. C.1. "**As above stated in IV.A.3, the proposed modification and combination is ineffective and inoperative to simultaneously perform Pilkington process and any optical fiber drawing process, including either Harding or Urruti's fiber drawing process.**"

[10-18-2004, p.29] IV. C.3. "**Even if Pilkington process and either Harding or Urruti**

process were to be combined in the manner proposed, the proposed combination would not show all novel manipulative and physical features of claim 21 as stated in IV.A.4. (i) and (iii) because neither Pilkington, nor Harding, nor Urruti has a measurement of the preform outer diameter or geometrical parameter in their processes."

[10-18-2004, p.30] IV. C.6. **"Even if Pilkington's method and Harding or Urruti's method were to be combined in the manner proposed, the proposed combination would not show all of the novel manipulative and physical features of claims 24-25. ... ..."**

[10-18-2004, p.31] IV. C.7. **"These new features as stated above are unobvious over the prior art, including the references, especially due to their novel control principles and methods. Thus, claims 24-25 are unobvious over Pilkington and Harding or Urruti."**

[10-18-2004, p.31] IV. C.8. **"The novel features in claims 24-25 provide a robust control against the preform diameter deviation and different shape, ..."**

[10-18-2004, pp.34-35] IV.C.14. **"How to locate sensors to reach an optimal goal for a control system is always a challenging and open problem in control area. It is especially true for a complex and large control system, such as the optical fiber drawing process control.**

It can be shown by a series of patents have been issued in the fiber drawing process in the world in view of their different sensor locations, such as the cited references Harding, Urruti, Kenmochi, and Roba, and other references Kokai JP 295260, Yoshimura US 5073179, and Urruti US 5443610 as discussed in the present specification. [emphasis added]

Therefore, how to reasonably locate sensors and what to be reasonably measured in the fiber drawing process are unobvious to a person having ordinary skill in the art."

[10-18-2004, pp.45-46] VII.A. **"Optimal Sensor Location Problem Is Always a Challenging and Open Problem in the Area of Control and Systems"**

[10-18-2004, p.46] VII.B. **"A Series of Issuing These Patents in the Fiber Drawing Process Show that the Subject Matter of the Meaningful and Effective Sensor Locations in the Optical Fiber Drawing Process is Patentable and Unobvious."**

[10-18-2004, p.46] VII.F. **"Robustness Issue. Applicant Has Been Consulted by Some Optical Fiber Manufacture Company Regarding the Robustness Issue of the Optical**

Fiber Drawing Process. This present invention can further solve various robustness requirement issues and problems in the fiber drawing process. Thus, it also reflects that **the present invention is unobvious**."

[10-18-2004, p.46] VII.G. "**Professional Recognition** – The invention has been given an award and recognition by the University of North Carolina at Charlotte. (Please see the attached copy.)"

[10-18-2004, p.46] VII.H. "**Competitive Recognition** – Recently, some foreign (and non-China) company filed a patent application in China, the content of that is basically similar and close to this present invention as they recognized. They have read and checked the applicant's this patent application in China, for that the applicant applied as an international patent application in 2002 following the US PTO permission notice to this US patent application. (Please see the attached copy.)"

[10-18-2004, p.47] VII.I. "**Some Foreign Company Intended to Purchase the Present Invention and Application.**
An agent company contacted the applicant on behalf of that foreign company, and said that foreign company had intended to purchase the present invention and application of the applicant. (Please see the attached copy.)"

- **In 4-7-2005 Reply:**

[4-7-2005, p.20] III.A.2. "**There is No Any Teaching, Suggestion, or Motivation for Combining or Modifying Features of the References. Therefore, the rejection is as being based on hindsight from the piece of the present invention. However, the present invention does not combine two distinct and separate processes. It is an optical fiber drawing process.**"

[4-7-2005, p.25] III.A.3.4. "**Furthermore, it is a well-known and clear fact that optical fiber manufacturing has two major distinct processes, i.e., the preform manufacturing and the optical fiber drawing. They are totally separated processes and not combined due to a lot of technical difficulties. Please refer to the prior art.**"

[4-7-2005, p.25] III.A.3.5. "**Moreover, if combined or modified as the final O.A. suggests, their two process control systems would give conflict controls for preform**

movement, and thus destroy the references and the whole combined process. Thus, it is inoperative and destroys the references. ... ..."

[4-7-2005, p.28] III.A.3.10. "**Moreover, only through hindsight would someone find and combine them with an inoperative combination, because the combined or modified references are from different arts and different scopes, and will destroy each other process if combined.**"

[4-7-2005, pp.31-32] III.A.4.6. "**One important key is the novel control principle for the feeding speed control in the claims. It is entirely foreign to the prior art. The references lack that.** ... ..."

[4-7-2005, pp.32-34] III.A.4.7. "**Errors in the final O.A. for the fiber drawing process control.** ... ...

The above final O.A. errors further prove that the present invention is unobvious"

[see details in 4-7-2005 Reply pp.32-33]

Applicant submits that the errors made by examiner on the fiber drawing process control are objective evidence to show the present invention is unobvious.

[4-7-2005, pp.56-59] III.D.4. "**Error is the concept that "with any process, the more locations the product is monitored, the better the final product would be" in the final O.A.** ... ..."

[4-7-2005, p.59] III.D.7. "**Moreover, claimed new features make new and unexpected results as follows:**

a. **robustness to control the required bare fiber diameter against various disturbances, perturbations and deviations of the preform and preforms;**
b. **solving time-lead and time-lag measurement problem;**
c. **providing high speed, high accuracy data of the second measurement of bare fiber needed for high speed fiber drawing process control and defect detection over Urruti's shadow gauge; and**
d. **reducing the processing time of Urruti."**

[4-7-2005, p.60] III.D.9. "**A series of issued patents as cited references further prove**

that different measurements in a large complex process and control are challenging and unobvious to a person having ordinary skill in the art."

[4-7-2005, p.60] III.D.10. "**The Invention is Unobvious from the fact in view of lack of implementation.**

If the invention were in fact obvious, because of its advantages as also recognized in the final O.A. by suggested combination and modification, those skilled in the art surely would have implemented it early. That is – the fact that those skilled in the art had not and have not implemented the invention, despite its great advantages, indicates that it is not obvious."

[4-7-2005, p.60] III.D. 11. "**Professional Recognition** – The invention has been given an award and recognition by the University of North Carolina at Charlotte. (Please see the attached copy.)"

[4-7-2005, p.60] III.D. 12. "**Competitive Recognition** – Recently, some foreign (and non-China) company filed a patent application in China, the content of that is basically similar and close to this present invention as they recognized. They have read and checked the applicant's this patent application in China, for that the applicant applied as an international patent application in 2002 following the US PTO permission notice to this US patent application. (Please see the attached copy."

[4-7-2005, p.60] III.D.13. "**Some Foreign Company Intended to Purchase the Present Invention and Application, as a factor as the U.S. Supreme Court has ruled for certain 'secondary considerations'.**

An agent company contacted the applicant on behalf of that foreign company, and said that foreign company had intended to purchase the present invention and application of the applicant. (Please see the attached copy.)"

[4-7-2005, pp.60-61] III.D.14. "**The above facts including the factual evidence of "secondary considerations" are submitted together with arguments listed above for requesting reconsideration.**"

- **In 5-10-2005 Reply:**

[5-10-2005, pp.18-19] I.4. "**There is no any teaching, suggestion, or motivation for combining or modifying features of the references. Therefore, the rejection is as being**

based on hindsight from the piece of the present invention. On the other hand, the present invention does not combine two distinct and separate processes. It is an optical fiber drawing process. ... ..."

[5-10-2005, pp.24-26] I.11. "**The rejection to Claim 21-23 is wrong because the final O.A. distorts the reference Yoshimura as clearly pointed out by A.3.7 of 4-7-2005 Reply (pp. 26-27). Please also refer to the above 1.1 – 1.3. ... ..."**

[5-10-2005, p.26] I.12. "**The Examiner fails to follow MPEP 707.07(f) -- Answer All Material Traversed "Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it", because the examiner fails to answer the evidences, rationale or arguments in the remain part of applicant's 4-7-2005 Reply (pp. 26 – 66) ... ...".**

[5-10-2005, pp.55-56] III.8. "**A series of issued patents as cited references further prove that different measurements in a large complex process and control are challenging and unobvious to a person having ordinary skill in the art. ... ..."**

- **The examiner's Actions lacks consideration on the above cited and presented objective evidence in the 10-18-2004, 4-7-2005 and 5-10-2005 Replies.**
- **Furthermore, it is a clear objective evidence in view of Harding's specification and sole figure that Harding process does not teach the following steps in Claim 21:**

  (a) "measuring either the outer diameter or shape of a preform";

  (b) "providing a control system with the measured outer diameter or shape of said preform , the measured outer diameter of said optical fiber, a predetermined nominal preform value and a predetermined nominal fiber value for controlling said drawing process".

Harding's process lacks the preform measurement in his control system, wherein Harding's control system input has only fiber measurement, "a particular rate" of the preform feeding, and a "nominal or preset capstan speed calculated beforehand". Harding also teaches that it is important not to deviate by more than ±5% of the preset values.

- **It is a clear objective evidence that Harding process lacks "robust performance of said process and robust quality of said optical fiber against deviations of the preform outer diameter or shape at different locations and against deviations of various preforms, making a robust diameter-controlled optical fiber" as claimed in Claim 21** because his process lacks of utilizing both measured preform value and a predetermined nominal preform value together with the measured fiber diameter and a predetermined nominal fiber value for controlling said optical fiber drawing process.

  The fact is that Harding control system input has only a particular preform feeding rate, a predetermined capstan pulling rate (i.e., a predetermined fiber drawing rate) and fiber diameter measurement.

- **The objective evidence is that Harding has not teaching or suggesting any modification to do the claimed present invention**.

  There is no any motivation in reference Harding and in ordinary skill from the reference teaching or suggesting to do the claimed present invention.

- From the above and Harding's col. 2, lines 54-68 and col. 3, lines 1-20, **it is a clear fact that Harding teaches away from the claimed present invention**. Thus, there is no any motivation or suggestion for ordinary skill to modify the reference Harding. **Thus, the present invention is clearly unobvious.**

  The above fact and objective evidence show that the examiner's Action violates the MPEP 2141.02 by stating [p.9, L.12-14] "It is deemed that the automatic system in combination with the features that Harding explicitly teaches constitutes the "control system" for his rejection to the present invention.

  PRIOR ART MUST BE CONSIDERED IN ITS ENTIRETY, INCLUDING DISCLOSURES THAT TEACH AWAY FROM THE CLAIMS

  A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

- **Moreover, the examiner again cuts some words from the reference and then explains them in different ways from the reference teaching for making the rejections**. [see O.A.

p.7, L.15, L.23-25; p.8, L.1-3]

- **Applicant therefore submits that to automate Harding's process, as examiner proposed for an ordinary skill, is not the claimed present invention. It is a clear fact and objective evidence from the Harding's Specification.**
- **Applicant submits that Examiner's allegation of obviousness is not legally justified and is therefore improper. Thus applicant submits that the rejection on the reference Harding is also improper and should be withdrawn.**

II.1.5. Examiner's Action fails to follow the MPEP 2143.03 and the following court resolutions, *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The O.A. distorts the reference Harding by alleging the same robustness and failing to ascertain the difference of control system principles. The objective evidence that Harding lacks teaching or suggesting the key features in Claim 21 shows that the claimed invention is unobvious and patentable over the references.

MPEP 2143.03 All Claim Limitations Must Be Taught or Suggested

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). [emphasis added]

- The O.A. [p.9, L.5-9] wrongly states:

  "In view of the four inquiries, it is deemed that the invention is obvious as follows:

  Although inquiry 2 reveals that there is no indication whether these measurements/calculations are done by hand or by machine, this is not important – because inquiry 3 reveals that proving an automatic apparatus is a routine and obvious practice."

- The above O.A. statement is in error because the following facts and the reasons:
  - The O.A. does wrongly in both inquiry 2 and inquiry 3 as pointed out in the above;

- The objective fact is that Harding does not teach or suggest providing both measured preform value and a predetermined nominal preform value to the control system for controlling said optical fiber drawing process either by machine or by hand;
- Examiner further uses his wrong reasoning "this is not important – because inquiry 3 reveals that providing an automatic apparatus is a routine and obvious practice".
- Because Harding's process lacks the claimed key steps and manipulations as listed above, it is a lack either by hand or by machine.
- Because Harding's process lacks these key steps and manipulations, the automatic apparatus completing the Harding's manipulations still lacks these key steps and manipulations.
- If hand manipulations lack the above key steps, its automatic apparatus copying the hand manipulations, of course, still lacks the above key steps.
- Thus, it is a clear fact that examiner's Action does wrong arguments/allegations again.

Thus applicant submits that the rejection on the reference Harding is improper and should be withdrawn.

II.1.6. The O.A. statements [p.9, L.10-18] **are in error because the following facts and reasons:**

- Examiner's Action distorts Harding process by the statements [p.9, L.10-18] and omitting the significant and distinguished differences of the control systems;
- Because the distinguished differences between Harding's process and the claimed present invention, "one of ordinary skill to perform the Harding process, by using a completely automatic machine to do the steps that Harding disclosures, namely the measuring, calculating, etc." [O.A. p.9, L.10-12] is NOT executing the claimed invention process that has distinguished different steps from Harding's process.
- It is clear and important from the Harding's sole figure and his specification that Harding's measuring and calculating are totally different from the claimed invention as pointed out in above II.1.2.

- Harding's process clearly lacks controlling his preform feeding speed and fiber drawing speed by measuring the preform diameter or shape and providing the measured preform value in addition to a predetermined nominal preform value. These differences are the difference of control principles between Harding's process and the claimed invention.
- The above lack is the lack of Harding's process in either by machine or by hand. Then, an automatic machine that copies the manual activity is of course still lack this key control principle, i.e., how to manipulate, and manipulation principle.
- Because Harding never teaches or suggests the above principle, how examiner can allege his statement on page 9, lines 12-14?

II.1.7. Examiner fails to point out where Harding teaches or suggests that his control system needs both the nominal preform value and the measured preform value for his control principle. Harding's process lacks the key steps and control principle claimed in Claim 21 as recited in the above items II.1.1 [pp.26-30] **and II.1.2** [pp.30-32]**.**

- Harding's preform feeding speed is set to a particular rate and is slowly adjusted to maintain long term of the preform feed drive if the measured capstan speed [fiber drawing speed] is at a stable speed slightly different from a pre-calculated speed. However, Harding's control system does not adjust its preform feeding speed based on the measurement of the preform and a predetermined nominal preform value.
- His teaching is to use only average preform diameter, length and weight for calculate beforehand the nominal fiber drawing speed only!
- His control system clearly lack the limitation of providing both preform measurement and the predetermined nominal preform value for controlling the process, that is one of the control principle in the claimed present invention.

II.1.8. Harding has no any teaching and suggesting for any modification to achieve the present invention. Therefore, there is no any motivation from the reference teaching and suggesting for the ordinary skill to do modification. It is objective evidence and shows that the present invention claimed in Claim 21 is

nonobviousness.

II.1.9. There is no any teaching, suggestion, or motivation for modifying features of the references. Therefore, the rejection is as being based on hindsight from the piece of the present invention.

II.1.10. Dependent claims 22 and 24-25 incorporate all the subject matter of claim 21 and add additional subject matter which makes them a fortiori and independently patentable over Harding 4793840.

If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

- It is clear that Harding's process further omits more applicant's claimed features in **Claim 22**, such as the following recitation:

  "measurement of said preform outer diameter or shape is on-line by a measurement monitor device;

  the measured diameter or shape is on-line real-time fed to said control system; and

  said control system generates a control signal based on the measured preform diameter or shape , its deviation from the predetermined nominal preform value, and said nominal preform value,

  for controlling said process in face of the deviation of the preform diameter or shape."

- **Claim 24** additionally recites:

  "generating control signals based on the preform measurement, the fiber measurement, the deviation of the preform measurement from the predetermined nominal preform value, the deviation of the fiber measurement from the predetermined nominal fiber value, the predetermined nominal preform value and the predetermined nominal fiber value, for said optical fiber drawing process control".

The above citation is a novel control principle and patentably differs from the prior art.

- **Claim 25** additionally recites:

  "wherein the position of measuring the optical fiber is at a position at which shrinkage of the outer diameter of said optical fiber is not larger than a predetermined allowable

diameter deviation value of said optical fiber;

said control system generates control signals to control the drawing speed of said fiber from the melting preform and the feeding speed of said preform into the furnace, based on the measured preform outer diameter or shape , its deviation from the predetermined nominal preform value, said predetermined nominal preform value, the measured optical fiber outer diameter, its deviation from the predetermined nominal fiber value, and said predetermined nominal fiber value; and

the drawing process being carried out at said drawing speed and said feeding speed."

The above novel control principle in Claim 25 is entirely foreign to the prior art.

II.1.11. The O.A. statement [p.10, L.1] **is in error by stating "Claim 22: clearly all the values are used in the process". It is because Harding's process lacks the on-line measurement of the preform diameter or shape that is totally different from Harding's earlier measurement on the preform average diameter. Because Harding's process lacks this on-line measurement, therefore the statement that "clearly all the values are used in the process" is in error. It is also shows that examiner distorts the reference contents again.**

II.1.12. The O.A. wrongly states "Clearly, the Harding process is effective in the presence/face of the deviations" [page 10, L.5-6] **because Harding process can not be effective in the presence/face of the large deviations of the preform diameter.**

It also can be seen from the objective evidence: what Yoshimura (1990) teaches is to limit preform diameter change (col. 3, L.30-39) "the outer diameter of the optical fiber depends on a preform diameter, structural factors of the drawing furnace such as a heating length, a size of the furnace outlet, and a flow rate and a kind of an inert gas. **Thus, the present invention resides in not only limiting** the distance between the outlet or a center of the drawing furnace and the measuring device for the outer diameter **but also, as a whole, limiting such factors described above**." [emphasis added]

This objective evidence further proves that the claimed present invention is unobvious over the prior art including Harding and Yoshimura.

II.1.13. The O.A. statements [p. 10, L.7-9] **on Claim 24 are in error. Especially the statement, that "All of the control is 'based on' everything else"** [p.10, L.8], **is totally wrong and is obviously against the control principle.**

- **Please see 4-7-2005 Reply item C.3.6** [p.49-51].
- **Furthermore, Claim 24 specifically defines the control based on** "preform measurement, the fiber measurement, the deviation of the preform measurement from the predetermined nominal preform value, the deviation of the fiber measurement from the predetermined nominal fiber value, the predetermined nominal preform value and the predetermined nominal fiber value".
- It is clearly not based on "everything else".
- It is clearly a calculated and represents a significant limitation in Claim 24.
- Claim 24 is clearly patentable over the reference Harding.

II.1.14. The O.A. statements [p.10, L.10-17] **on Claim 25 are in error because Harding process clearly lacks the claimed features in Claim 25 as recited as follows:**

"wherein the position of measuring the optical fiber is at a position at which shrinkage of the outer diameter of said optical fiber is not larger than a predetermined allowable diameter deviation value of said optical fiber;

said control system generates control signals to control the drawing speed of said fiber from the melting preform and the feeding speed of said preform into the furnace, based on the measured preform outer diameter or shape , its deviation from the predetermined nominal preform value, said predetermined nominal preform value, the measured optical fiber outer diameter, its deviation from the predetermined nominal fiber value, and said predetermined nominal fiber value; and

the drawing process being carried out at said drawing speed and said feeding speed".

- **Such is not inherently met in Harding's process.** Please see Harding's sole figure and his teaching [col.2, L.54-68, col.3, L.1-20]. His teaching is totally different from the above recitation of Claim 25. Examiner again distorts the reference in his O.A.
- **The O.A. statements** [p.10, L.10-17] **are also against the objective evidence** that

Harding's process should be improved by Yoshimura's process and/or Urruti's process and/or the present invention when the drawing speed becomes high for the goal of high productivity.

- **The O.A. statements are against the fact of issuing Yoshimura and Urruti patents.**
- **When the preform becomes larger and larger for the goal of high productivity, the Harding's process should be improved by the present invention.**
- **Examiner's statements** [p.10, lines 11-17] **also contradict each other**, e.g., "the resultant fiber does not have any parameter which is not 'allowable' – including shrinkage" and "whereas Harding may have some unacceptable shrinkage (from Applicant's perspective), Applicant's own shrinkage could be not acceptable/allowable to someone else who desires some very specific fiber".
- **"A predetermined allowable diameter deviation value of said optical fiber" is a calculated and a represents a significant limitation in Claim 25, that is lacked by Harding's process.**
- **Applicant respectfully requests the PTO has a reasonable and fair examination on the present invention.**
- **The examination should not be an unreasonable examination on the application by distortion on the references for rejection to the application.**

II.1.15. The O.A. statements [p.10, L.18-21; p.11 L.1-3] **are in error because they distort the Harding process by stating "As to the control system: it is clear that Harding's system generates signals for the purpose of controlling drawing speed – and it is 'based on' everything including inconsequential stuff like the gravity from the moon."**

- **Applicant respectfully requests the PTO has a reasonable and fair examination on the present invention again.**

However, Examiner's Action is again unreasonable on the application and again does distortion on the references for the rejection to the application, e.g., in view of the above cited his statement.

- **Examiner fails to recognize Harding's process control is Not based on the preform diameter measurement, when examiner states that** "For example, if Harding's average diameter was 10 cm, then almost the entire process would be different from a process where the diameter is 15 cm. Harding's process is inherently based on every one of the claimed parameters." [p.10, L.20, p.11, L.1-3].

  Furthermore, Harding's process will not be stable if Harding's preform average diameter is 10 cm and the preform diameter is 15 cm, and its optical fiber product quality will be out of control because the following reasons and the facts:

  - **Harding's control system lacks the diameter measurement 15 cm of the preform for the control;**
  - **Harding's process uses 10 cm average diameter of the preform for the process control;**
  - **The preform feeding speed and the fiber drawing speed are not controlled based on both the preform diameter and the nominal preform value in Harding's process.**

- **The O.A. fails to observe the evidence that Harding's control law for preform feeding speed is not based on every one of the claimed parameters, such as the preform measurement.** Please see Harding col.2, L.54-68 and col.3, L.1-20. **The Harding's fiber drawing speed is also Not based on the preform measurement.**
- **The O.A. statement is against the Harding's teaching** [col.2, L.54-68, col.3, 1-20].
- **Because the O.A. is in error as pointed out above, Applicant submits that the rejection on Claim 21-22 and 24-25 should be withdrawn.**

II.1.16. The O.A. does not comply with the MPEP 2141 as cited below, and the rejection based on Harding is not justified and should be withdrawn.

MPEP 2141 BASIC CONSIDERATIONS WHICH APPLY TO OBVIOUSNESS REJECTIONS

When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:

(A) The claimed invention must be considered as a whole;

(B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;

(C) The references must be viewed without the benefit of impermissible hindsight vision afforded

by the claimed invention; and

(D) Reasonable expectation of success is the standard with which obviousness is determined.

Hodosh v. Block Drug Co., Inc., 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

- **The O.A. fails to comply with the above rules as shown below**.

The Examiner's Action fails to consider the claimed invention as a whole and to consider the reference Harding as a whole, but just cuts words or phrases from sentences to make the false or wrong and unreasonable statements.

Harding's teaching and suggestion as a whole is clearly different from the claimed invention, and Harding does not suggest an ordinary skill in the art to do claimed invention. Please refer to Harding col.2, lines 54-68; col.3, lines 1-20. For example, Harding's process lacks the key features as listed above items II.1.2 and II.1.10 [pp.30-32, 45-46]. In whole, Harding's process lacks the new control principles in the present invention.

The O.A. fails to comply with that "the references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention".

- **The rejections based on that should be withdrawn.**

II.2. Claims 26 and 28 are Unobvious and Patentable Over Yoshimura 5073179 in view of Urruti 5551967. The examiner's action and grounds for rejections are in error because his action and grounds distort the reference, are against the facts, and fail to follow the 35 USC 103 and the Supreme Court Rule in *Graham v. John Deere*, and MPEP policy as pointed out below.

II.2.1. The O.A. fails to give the correct scope and contents of the prior art, i.e., Yoshimura 5073179 and Urruti 5551967, in inquiry (1) that is required by the Supreme Court Rule and the Office Policy.

"MPEP 2141 BASIC CONSIDERATIONS WHICH APPLY TO OBVIOUSNESS REJECTIONS

When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:

(A) The claimed invention must be considered as a whole;

(B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;

(C) The references must be viewed without the benefit of impermissible hindsight vision

afforded by the claimed invention; and

(D) Reasonable expectation of success is the standard with which obviousness is determined.

Hodosh v. Block Drug Co., Inc., 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986)."

- **The O.A. fails to comply with MPEP 2141 and the cited Rule** above "The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination", in view of the following facts and reasons.
- **The O.A.** [p.11, L.8-13] **fails to determine Yoshimura's process control principle**: that is by only one sensor – measuring an outer diameter of the optical fiber on which no coating has been provided at a position at which shrinkage of the outer diameter of the optical fiber, while stretched, is not larger than 0.5% and drawing conditions are controlled based on the deviation of the measured diameter from a preselected outer diameter.
- **The O.A. statement** that "Yoshimura of similar content and scope to Applicant's invention" [p.11, L.8] **is in error** because it fails to see the significant different contents and differences between Yoshimura and Applicant's invention, which is totally not similar.
- **The O.A. fails to give any scope and contents of Urruti in "inquiry (1)".**
- **However, the Specification of the present invention clearly cites and describes the references, especially including Yoshimura 5073179 and Urruti 5443610, of which Urruti 5551967 is a division patent.** Please see the Specification page 6, paragraph 0023; page 18, paragraph 0074; page 21, paragraph 0089.
- The 10-18-2004 **Reply** [p.14, L.11-23] **summarizes Urruti 5551967**. The 4-7-2005 **Reply** [p.15-16] **summarizes Yoshimura** 5073179 **and Urruti** 5551967 again.
- The O.A. states "Yoshimura has heating, melting, drawing, coating, controlling, and deviations" [p.11, L.9-10]. However, **the O.A. fails to summarize the important issues: what Yoshimura's process controls, how it controls, what Yoshimura's deviations are**.
- **Urruti's comments on Yoshimura's process that**: "Yoshimura's response was to take the obvious step of simply moving the diameter measuring equipment further from the furnace as the speed increased" [col.3, L.18-21].

Applicant respects both Yoshimura's invention and Urruti's invention. Their inventions

represent the advance of the fiber drawing process.

At the same time, applicant respectfully requests the PTO to recognize the claimed present invention in view of the patentable features in the claims over the references.

II.2.2. The O.A. [p.11, L.16-18] **in inquiry (2) fails to ascertain all key differences between the prior art (Yoshimura and Urruti) and the claims at issue, that is required by the Rule and the Office Policy.**

- The key differences in view of Claim 26 are:

  "measuring the outer diameters of said optical fiber, which is bare before coating, at two or more different locations by respective measurement devices before the coating;"

  "providing a control system with the measurement data from all these measurement devices respectively at the different locations,

  wherein said control system

  has a first preselected nominal value for the measurement data from the first measurement location, and a second different preselected nominal value that is less than the first preselected value for the measurement data from the second measurement location,

  calculates the deviation of the measurement of the first measurement location from the first preselected nominal value, and the deviation of the measurement of the second measurement location from the second preselected nominal value, and

  dynamically controls a fiber drawing speed and a preform feeding speed for the drawing process based on the calculated deviations ".

- The key differences in view of Claim 28 are as follows in addition to the above in Claim 26:

  "further including a measurement of the outer diameter of said preform above the heating and melting;

  providing said control system with the measured outer diameter of said preform;

  wherein the control of the preform feeding speed and the fiber drawing speed of said drawing process is further based on the measured preform outer diameter, its deviation from a preselected nominal preform diameter, and said nominal preform diameter, in addition to the calculated deviations of the bare fiber".

II.2.3. As pointed out below, the O.A. statement [p.12, L.3-11] **distorts both Yoshimura's and Urruti's teachings and operation principles, makes wrong statement on Yoshimura's teaching, fails to respect the facts and objective evidence in the references – no motivation for modification and combination of the references, thus fails to "present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references" in inquiry (3). The obvious missing and distorting the facts and failing to comply with Rule and the policy in the O.A. are improper. Thus, applicant submits that the rejection on that should be withdrawn.**

- **Examiner's Action makes a wrong statement on Yoshimura's teaching by stating "that one can have one sensor very close to the furnace so as to reduce lag time – which is the same desire that Yoshimura has: getting the sensor close to the furnace"** [p.12, L.5-6].

  The fact is from Yoshimura's Abstract [L5-11] **that** "wherein an outer diameter of the optical fiber on which no coating has been provided is measured at a position at which shrinkage of the outer diameter of the optical fiber, while stretched, is not larger than 0.5% and drawing conditions are controlled based on the deviation of the measured diameter from a preselected outer diameter".

  Therefore, Yoshimura is Not getting the sensor close to the furnace, but is getting the sensor away from the furnace.

  Urruti also cites Yoshimura and comments that "This observed increase in measured diameter with increased tractor speed has also been reported in Yoshimura et al., U.S. Pat. No. 5,073,179. Yoshimura's response was to take the obvious step of simply moving the diameter measuring equipment further from the furnace as the speed increased" [col.3, 16-21]. [emphasis added]

  Therefore, the fact and objective evidence is as Urruti states that "Yoshimura's response was to take the obvious step of simply moving the diameter measuring equipment further from the furnace as the speed increased" [emphasis added]. **Yoshimura is Not getting the sensor close to the furnace, but is moving the sensor further away from the furnace.**

  Yoshimura's Abstract [L.5-11] **and Urruti's Specification** [col.3, L.16-21] **are objective**

evidence that clearly shows the fact that Examiner's Action [p.12, L.5-6] **makes the wrong statement on Yoshimura's desire and teaching.**

- **The O.A. further distorts both Yoshimura and Urruti's teaching and operation principles – measuring the bare fiber at only one location, because the O.A. distorts their principles by having two sensors at the same time measuring the bare fiber in examiner's proposed combination in view of the O.A.** [p.12, L.3-11].

- **Yoshimura and Urruti both have No double measurements on the bare fiber in their processes. That is the fact. Their combination would still measure the bare fiber from only one location at any time for the control system according to both Yoshimura's and Urruti's control principles in their Figures** [Yoshimura's Figure 1-3 and Urruti's Figures 1 and 5].

- **Examiner's wrong concept is that "with any process, the more locations the product is monitored, the better the final product would be"** [2-14-2005 O.A. p.12, L.10-11].

  However, the above concept is **incorrect and against the knowledge and principles of automatic control and engineering.**

  Please see 4-7-2005 Reply for details in item D.4 [p.56-59].

- **The O.A.** [p.12, L.3-11] **fails to identify the important key, i.e. how Urruti locates the sensors rather than simple more sensors, such as two, to make Urruti's "dramatic improvement", because just having two sensors May Not "obtain 'dramatic improvement'" in optical fiber drawing process. One key is how to locate the sensor or sensors at suitable/optimal locations.**

  Urruti and Yoshimura both have No double-sensor measurements on the bare fiber in their processes.

  The O.A. fails to point out the important fact in both inquiries (2) and (3) that Urruti's second sensor location is after the coating and his important teaching about his second sensor technique – shadow gauge. See Urruti, col.1, L.40-67; col.2, L.60-67; col.3, L.7.

- **This kind of distorting or omitting the important operation principles of the references and the important differences of the claimed invention form the references as pointed**

out above is improper.

- **From the above points, the O.A. statement [p.12, L.3-5],** "The level of skill of the theoretical 'one of ordinary skill' includes the knowledge contains in Urruti: that one can obtain 'dramatic improvement' by having two sensors, and that one can have one sensor very close to the furnace so as to reduce lag time – which is the same desire that Yoshimura has: getting the sensor close to the furnace", **is incorrect.**

- **The O.A. statement** [p.12, L.7-8], **that "Urruti achieve this goal by having two sensors – and has achieved 'dramatic improvement' in control col. 3, lines 64-67", fails to determine the important sensor location of Urruti's second sensor and the technique associated with the second sensor.**

  The O.A. statement [p.12, L.8-11] **states "It is noted Urruti was able to place the first sensor at a location much close to the furnace – where the fiber still had 4% shrinkage left".**

  However, applicant could not find where "4% shrinkage left" is from the reference Yoshimura "(See col. 5, lines 8-20 of Yoshimura)" or Urruti. Furthermore, the facts are that the prior art before Yoshimura sets the only one bare fiber sensor measurement close to the furnace, and Yoshimura moves it away from the furnace, and Urruti adds a second sensor using Shadow gauge after coating for a coated fiber measurement.

  This kind of action to omit the facts of the key features and differences, i.e., where and how Urruti's second sensor works, is totally improper.

  This O.A. statement also shows that no any motivation to modify or combine Urruti and Yoshimura because Urruti "has achieved 'dramatic improvement'" and Yoshimura is a Urruti's cited and commented reference.

- **Accordingly, applicant respectfully submits that the rejection on these statements** [p.12, L.3-11] **and these references is improper and should be withdrawn.**

- **Examiner's above statement in the O.A. shows that there is no any motivation for ordinary skill to do any modification on the reference further because he states "Urruti**

achieves this goal by having two sensors – and has achieved 'dramatic improvement' in control col. 3, lines 64-67".

- **The objective evidence is that there is no motivation from the reference teaching or suggestion for the ordinary skill in the pertinent art to do combination. MPEP states the followings:**

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See 706.02(j) See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria

Yoshimura and Urruti have no any teaching or suggestion for their combination as suggested by the examiner. Moreover, Urruti's process is invented after Yoshimura's invention and clearly cites Yoshimura. Urruti does not teach or suggest any combination with Yoshimura. Thus, it is clear that one of ordinary skill has no any motivation to do the proposed combination.

- **Thus, Examiner fails to "present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references" as required in** *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985) **by the MPEP.**

- **Accordingly, applicant respectfully submits that the rejection on these statements** [p.12, L.3-11] **and these references is improper and should be withdrawn.**

II.2.4. The O.A. fails to consider objective evidence present in the application indicating nonobviousness, e.g., as listed in above item II.1.4 [pp.34-42].

- **Examiner's Action** [p.12, L.15-16] **incorrectly states** "Applicant has not provided any objective evidence. All evidence appears to be subjective." **His statement is in error and is**

against the facts as pointed out above in II.1.4, pages 34-42.

- **Applicant has provided a lot of objective evidences to show non-obviousness in his Replies** of 10-18-2004, 4-7-2005 and 5-10-2005 during the application process, e.g., cited in the above item II.1.4 [pp.34-42] and item II.2.3 [pp.53-56].
- Here, applicant further present objective evidence and related reasoning as follows:
- **There is no reference teaching or suggestion to combine Yoshimura and Urruti. Thus, the fact, that examiner suggests a combination of Yoshimura and Urruti, shows that examiner is viewing the references with the benefit of impermissible hindsight vision afforded by the claimed invention.**
- **Moreover, the prior art reference (or references when combined) do Not teach or suggest all the claim limitations.**
- **The O.A. does not comply with the MPEP 2141 as cited below, and the rejection based on Yoshimura and Urruti is not justified and should be withdrawn.**

MPEP 2141 **BASIC CONSIDERATIONS WHICH APPLY TO OBVIOUSNESS REJECTIONS**

When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:

(A) The claimed invention must be considered as a whole;

(B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;

(C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and

(D) Reasonable expectation of success is the standard with which obviousness is determined.

Hodosh v. Block Drug Co., Inc., 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See 706.02(j) See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria".

- **Even if the combination were to be in the manner proposed, Yoshimura and Urruti would still lack one or more of the substantial manipulative features claimed, e.g.,**

  Claim 26 recites:

  - "measuring the outer diameters of said optical fiber, which is bare before coating, at two or more different locations by respective measurement devices before the coating";
  - "a second position location is below the first position location, at this second position location shrinkage of the outer diameter of said optical fiber, while stretched under the drawing, is not larger than a predetermined allowable bare fiber diameter deviation value of said optical fiber, or immediately before the coating";
  - "providing a control system with the measurement data from all these measurement devices respectively at the different locations";
  - "calculates the deviation of the measurement of the first measurement location from the first preselected nominal value, and the deviation of the measurement of the second measurement location from the second preselected nominal value";
  - "dynamically controls a fiber drawing speed and a preform feeding speed for the drawing process based on the calculated deviations".

  Claim 28 further recites:

  - "measurement of the outer diameter of said preform above the heating and melting";
  - "providing said control system with the measured outer diameter of said preform";
  - "wherein the control of the preform feeding speed and the fiber drawing speed of said drawing process is further based on the measured preform outer diameter, its deviation from a preselected nominal preform diameter, and said nominal preform diameter, in addition to the calculated deviations of the bare fiber"

- **Moreover, claimed new features make new and unexpected results as listed on pages 38-39:**

  a. robustness to control the required bare fiber diameter against various disturbances, perturbations and deviations of the preform and preforms;

b. solving time-lead and time-lag measurement problem;

c. providing high speed, high accuracy data of the second measurement of bare fiber needed for high speed fiber drawing process control and defect detection over Urruti's shadow gauge; and

d. reducing the processing time of Urruti.

II.2.5. The O.A. statement [p.12, L.17-18] **fails to point out "two diameter sensors" locations which Urruti teaches in his invention. It is well known that sensor locations are a very challenging problem in control area. The examiner's Action wrongly omits this important feature, distorts the fact and the references, and fails to follow the Rule, court decisions and the Office policy as cited above.** (Refer to above II.2.3.)

From Urruti's teaching or suggestion as he has done on Yoshimura, the O.A. statement [p.12, L.17-18] **should reach to Urruti's invention as Urruti has done to have a second sensor measuring the coated fiber by using Shadow technique. Urruti and Yoshimura both do Not have any teaching or suggestion on double measurements on the bare fiber.**

II.2.6. The O.A. statement [p.13, L.1] **"The first 8 lines of the claim is clearly met by the above combination" and statement** [p.13, L.1-3] **are in error because of the following evidence, fact and reasons:**

(a) **There is no any teaching or suggestion or general knowledge for their combination in the references for examiner to establish a motivation for an ordinary skill.**

(b) **Even if the combination were to be in the manner proposed, the resultant teachings of Yoshimura and Urruti would still lack the following substantial manipulative and physical features claimed in Claim 26 and 28 as listed above in item II.2.4** [p.58].

(c) **The examiner's suggestion for the combination or modification is hindsight.**

(d) **Urruti cites Yoshimura and gets Urruti's invention that teaches away from the present invention of having double sensors measuring on the bare fiber.**

(e) **From the above, it is again clear that the claimed invention is unobvious and patentable.**

II.2.7. Regarding the "data sets" in the O.A. [p.13, L.5-10], **please see the above item I.1** [p.13-14]. **The amendment in Claims 26 and 28 by deleting "data sets" obviates the rejection.**

II.2.8. As to the O.A. [p.13, L.11] **statement "The robustness: see Urruti col. 2, line 21", Claim 26 has been amended by adding word "double" as** "whereby to maintain robustly controlled performance of said optical fiber drawing process and robust quality of said optical fiber by double monitoring the changes of the bare fiber diameters".

- Thus, the robustly controlled performance and robust quality by double monitoring the changes of the bare fiber diameters in claim 26 clearly differ from the word "robust" used in Urruti col.2, line 21. Urruti's process lacks this robustness claimed in Claim 26.
- On the other hand, Urruti col.2, lines 14-22, recites: "Note that the diameter measurement technique disclosed in commonly assigned U.S. patent application Ser. No. 07/816,882, filed Dec. 31, 1991, now U.S. Pat. No. 5,309,221 and entitled "Measurement of Fiber Diameters with High Precision" can measure the diameter of a hermetically-coated fiber, i.e., an IDM of this type can be placed after coater 54. However, even this technique, although significantly more robust than prior techniques, becomes susceptible to error as the coating thickness becomes large." [emphasis added]
- Thus, the amendment obviates the rejection on the robustness described in Urruti col.2, L.21.

II.2.9. The O.A. statement [p.13, L.12-20] **is in error because the statement distorts Urruti's teaching by stating "Claim 28: figure 5 disclose a controller for glass feed in the upper right corner. It would have been obvious to measure the preform so that one will know how fast one should feed the glass".**

- **Figure 5 of Urruti clearly shows the fact that** glass feed controller is controlled based on a fiber drawing SPEED TARGET compared with a fiber drawing speed from another controller which is based on the fiber diameter target and his one IDM measurement on a bare fiber and one Shadow Gauge measurement on a coated fiber. **There is no any preform diameter measurement in Urruti Fig. 5.** This fact and objective evidence shows that examiner clearly distorts the reference Urruti's process and teaching, especially Urruti's control Principle.

- **This objective evidence clearly shows that the claimed present invention is unobvious.**
- **On the other hand, the Examiner's distortion on the reference and arbitrary rejection on the application are improper.**
- **Applicant respectfully submits that the rejection on this statement and these references should be withdrawn.**
- **Applicant respectfully requests the PTO to Not allow the examiner's distortions on the references and arbitrary rejections on the claimed present invention.**

  Applicant again respectfully request the PTO to examine the present invention application fairly and to respect the facts and honor the present invention value.
- **Urruti's preform feed speed is indeed controlled by the deviation of the fiber drawing speed from its speed target.**

  In col. 2, lines 36-38, Urruti clearly states that "The overall control loop used is shown in FIG. 3. As shown in this figure, the control system employed both a target draw speed and a target fiber diameter".

  In Fig. 5, the glass feed part is the same as the corresponding part in Fig. 3 as Urruti states in col. 5, lines 39-41, that "Thereafter, control of the drawing process based on tractor speed and preform feeding is the same as in FIG. 3."
- **This obvious evidence clearly shows that the claimed invention is unobvious over the references.**
- **The O.A.** [p.13, L.14-20] **many times states the concept of conservation of mass and then rejects the present invention. However, it is in error, because the concept of conservation of mass does not reject inventions, such as Yoshimura and Urruti and the present invention.**
- **The O.A. statement** [p.13, L.14-20] **is incorrect because one can weight the preform to get the preform mass without any one measurement of the preform diameter.**
- **The O.A. statement** [p.13, L.14-20] **still disregards the claimed control principle.**
- **Applicant respectfully submits that the rejection on this statement and these references**

should be withdrawn.

II.2.10. Moreover, in the claimed present invention, "the control of the preform feeding speed and the fiber drawing speed of said drawing process is further based on the measured preform outer diameter, its deviation from a preselected nominal preform diameter, and said nominal preform diameter, in addition to the calculated deviations of the bare fiber" as claimed in Claim 29.

It is clearly a novel control principle that is patentably differs from the prior art.

II.2.11. The O.A. rejection based on the statement [p.14, L.1-5] **is incorrect because the statement ignores the important differences among utilizing or not utilizing the deviations and nominal diameters, and different control principles in the controls.**

- **The O.A.** [p.14, L.1-5] states **"As to the deviations and nominal diameters – all such would be inherently part of the process: the process would proceed regardless of deviations and a nominal diameter – and such would effect the process."**
- **Here, examiner again wrongly ignores important issues:**

  <u>What deviations</u> <u>and</u> <u>what nominal diameters</u> <u>are,</u> <u>and whether to use them or not</u>.

- **All these are not inherent part of the process. Please see the difference of Yoshimura and Urruti as an example.**
- **Further, as to examiner's wrong rejection on the above statement, applicant asks whether the optical fiber drawing process can be successful without any drawing process control according to the concept: "the process would proceed regardless of deviations and a nominal diameter – and such would effect the process", or not?**
- **Further, as to examiner's above statement, applicant asks whether Yoshimura and Urruti do not need to do their inventions because the deviations and nominal diameters – all such would be inherently part of the process, or not?**
- **Yoshimura's and Urruti's processes both do Not input the deviations of the prefrom diameter into their respective control systems and do Not use them in their respective control.**

- **Applicant respectfully submits that the rejection on this statement and these references should be withdrawn.**

II.2.12. As to the O.A. [p.14, L.6] **to have Urruti as the primary reference, the above items II.2.1~II.2.11** [pp.50-63] **are still valid and do still show the claimed invention patentable over the references with Urruti as the primary reference.**

Thus, the rejection on this statement and the references should be withdrawn.

II.2.13. The O.A. statement [p.14, L.7-8] **is in error because Urruti's teaching and disclosure substantially lack the claimed features, e.g., in Claims 26 and 28 as listed above in items II.2.2** [p.52] **and II.2.4** [p.58], **and because Examiner distorts the principle of Urruti's figure 5 again.**

Thus, the rejection on this statement and the references should be withdrawn.

II.2.14. The O.A. statement [p.14, L.10; p.15, L.1-3] **is in error because the proposed modification on Urruti by omitting the hermetic coating destroys the purpose of Urruti's invention and damages the product quality of optical fiber.**

- **This function is Desired and Required, thus the hermetic coating can not be omitted in Urruti 5551967.**

The hermetic coating is required "to reduce absorption of water and hydrogen into fiber" (Urruti, col. 1, lines 39-40) for protecting the optical fiber from moisture.

It is known that if this coating is omitted, it will cause a detrimental phenomenon called stress corrosion, i.e., static fatigue, and further cause bonds to break down and spontaneous fractures.

The fact is that water, hydrogen and moisture is around us in the Nature, and fiber needs this coating that is a key step and can not be omitted in Urruti process.

However, the O.A. distorts the reference and the common knowledge by citing an only threat of water damage and omitting a threat of hydrogen damage or moisture damage in the O.A. statement [p.15, lines 1-3]. Hydrogen is in the air. The hermetic coating is required.

The O.A. lacks the fact support to allege his statement [p.15, L.1-2] on Yoshimura to draw

optical fiber without a hermetic coating. **Examiner fails to point out any specific Yoshimura's teaching to support examiner's allegation.**

Please see Yoshimura's teaching [col.1, L.16-24] for the fact that clearly shows that Yoshimura's coating is to protect "bare fiber" which "tends to be considerably damaged and influenced with moisture". "Therefore, the bare fiber is usually coated with an ultraviolet curable resin or a thermosetting resin in a resin coating device comprising, for example, a die, the resin is consequently cured in a resin curing device, and then the fiber is wound as a coated optical fiber."

From Yoshimura's teaching, his coating should be a hermetic coating.

- **It further shows that the present invention claimed in Claim 26 is unobvious and patentable.**

- **Furthermore, there is no any teaching, suggestion, or motivation for omitting the hermetic coating in Urruti process. Thus, the rejection to Claim 26 is as being hindsight to build a new process with some key features as claimed in the present invention by omitting some required step and function, but at the same time to destroy the reference purpose and to damage the product quality.**

Urruti teaches using a special shadow technique for monitoring this hermetically coated fiber as that "Since the fiber has been hermetically-coated at this point, the technique used for this measurement must be operable in the presence of such a coating. One suitable approach is the shadow technique employed in the commercial Anritsu monitor." [col. 4, L.63-67]

- **If this function were not desired and could be omitted, then Urruti would not have taught Anritsu device with the shadow technique, where "a tuning-fork is used to sweep a thin beam of light across the width of the fiber and the presence or absence of light at a detector as a function of time is used to locate the edges of the fiber's shadow"** [col. 5, L.4-7], **and he would have used "IDM so as to provide high speed, sub-second data suitable for performing statistical calculations to ensure fiber quality as well as to provide information regarding defects in the fiber",** [col. 3, L.59-62] **in Urruti 5551967.**

But he had to sacrifice the advantage of IDM and to use the shadow technique because the hermetic coating is required and can not be omitted.

On the other hand, the present invention also does not propose to omit any Urruti 5551967 coating steps or functions.

Therefore, in all, there is no any basis for examiner to cite "Omission of an Element and its Function is Obvious if the Function of the Element is Not Desired" in view of Urriti.

- **Moreover, even as modified to omit the hermetic coating as the O.A. suggested, the measurement technique for the second bare fiber measurement in the present invention is totally different from the shadow technique which Urruti uses. The regular bare fiber measurement technique in the present invention has advantage as Urruti recognized and cited above. This fact also shows that the present invention is Unobvious over Urruti.**

- **The disadvantages of the shadow technique and the advantage of IDM technique were clearly stated in Urruti 5551967 (col. 2, lines 46-54)** as follows:

  "By averaging a series of measurements, the *shadow technique* can provide diameter measurements of good accuracy. The average, however, needs to be made over a period of time on the order of a second which makes *this technique unsuitable for the high speed diameter measurements needed for process control. IDMs, on the other hand, are capable of providing high speed and high accuracy.* Also, they can be used *to detect fiber defects, a capability not shared by shadow measuring techniques.*"

- **Furthermore, the O.A. is in error by wrongly citing MPEP 2144.04 for the claims at issue in the present invention in view of the above facts and reasons. MPEP 2144.04 is not relevant to the claimed present invention because the step and function Is Desired and Required in optical fiber, otherwise damage the product and the process goal.**

II.2.15. With regard to the proposed combination of Yoshimura and Urruti, or Urruti and Yamamura, the O.A. fails to provide teachings or suggestions from the references for their combination, thus fails to comply with the following court decisions and fails to provide the basis for ordinary skill to have a general available knowledge and any motivation for their combination.

- It is well known that in order for any prior-art references themselves to be validly combined for use in a prior-art 103 rejection, the *references themselves* (or some other prior art) must

suggest that they be combined, e.g., as was stated in In re Sernaker, 217 USPQ 1,6 (CAFC 1983):

"[P]rior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings."

- That the suggestion to combine the references should not come from applicant was forcefully stated in Orthopedic Equipment Co. v United States, 217 USPQ 193, 199 (CAFC 1983):

"It is wrong to use the patent in suit [here the patent application] as a guide through the maze of prior art references, combining the right references in the right way to achieve the result of the claims in suit [here the claims pending]. Monday morning quarterbacking is quite improper when resolving the question of nonobviousness in a court of law [here the PTO]."

- Applicant would further cite the following. As was further stated in Uniroyal, Inc. v. Rudkin-Wiley Corp., 5 USPQ2d 1434 (CAFC 1988),

"[w]here prior-art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. ... *Something in the prior art must suggest the desirability and thus the obviousness of making the combination.*" [emphasis added]

- In line with these decisions, the Board stated in Ex parte Levengood, 28 USPQ2d 1300 (P.T.O.B.A.&I. 1993):

"In order to establish a *prima facie* case of obviousness, it is necessary for the examiner to present *evidence*, preferably in the form of some teaching, suggestion, incentive or inference in the applied prior art, or in the form of generally available knowledge, that one have ordinary skill in the art *would have been led* to combine the relevant teachings of the applied references in the proposed manner to arrive at the claimed invention. ... That which is within the capabilities of one skilled in the art is not synonymous with obviousness. ... That one can *reconstruct* and / or explain the theoretical mechanism of an invention by means of logic and sound scientific reasoning does not afford the basis for an obviousness conclusion unless that logic and reasoning also supplies sufficient impetus to have led one of ordinary skill in the art to combine the teachings of the references to make the claimed invention. ... Our reviewing courts have often advised the Patent and Trademark Office that it can satisfy the burden of establishing a *prima facie* case of obviousness only by showing some objective teaching in either the prior art, or

knowledge generally available to one of ordinary skill in the art, that 'would lead' that individual 'to combine the relevant teachings of the references.'... Accordingly, an examiner cannot establish obviousness by locating references which describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done."

II.2.16. The Present invention in its *BACKGROUND OF THE INVENTION* section of the Specification has clearly cited and discussed the references Yoshimura and Urruti. Applicant has clearly pointed out the distinct differences of the present invention from the references.

Even if combined as examiner's suggested, the resultant combination would still lack the double bare fiber measurements monitoring in Claims 26 and 28 of the present invention, because Yoshimura teaches only one monitoring of bare fiber in the process and Urruti also teaches only one monitoring of bare fiber and another monitoring of coated fiber in the process.

II.2.17. It is not obvious and no motivation to take more than one measurement of the bare fiber prior to the present invention. Otherwise, it would have been mentioned in either Yoshimura or Urruti.

II.2.18. Moreover, claimed new features make new and unexpected results as follows:

a. robustness to control the required bare fiber diameter against various disturbances, perturbations and deviations of the preform and preforms;

b. solving time-lead and time-lag measurement problem;

c. providing high speed, high accuracy data of the second measurement of bare fiber needed for high speed fiber drawing process control and defect detection over Urruti's shadow gauge; and

d. reducing the processing time of Urruti.

II.2.19. Base on the above objective evidence, facts and reasons, applicant submits that the rejections on these references combination of Yoshimura and Urruti are improper and should be withdrawn.

II.3. Claims 30-36 are Unobvious and Patentable Over Urruti 5551967 and Yamamura 6220057.

The examiner's Action is in error and the grounds for rejections are in error because the action and grounds distort the references, are against the facts, and do not follow the 35 USC 103 and Rule in *Graham v. John Deere*, as pointed out below.

Please see the prior Replies for the prior Actions errors and failures to comply with the Rule, court decisions and MPEP policy.

II.3.1. The O.A. fails to give the correct scope and contents of Urruti 5551967 and Yamamura 6220057, that is required by the Rule and the Office Policy.

- **The O.A.** [p.15, L.10-11] **fails to determine the scope and contents of either Yamamura or Urruti.**

  What the O.A. gives to address inquiry (1) is only one sentence [p.15, L.10-11] "Based on Applicant's definition of 'bare fiber' on page 3, the scope and content of Urruti is substantially the same as applicant".

  Thus, it is clearly that examiner fails to give specific scope and contents of Urruti to address inquiry (1) as required by Supreme Court Decision Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966) and MPEP Office policy.

- Furthermore, **the O.A. makes wrong statement** [p.15, L.10-11] **as cited above.**

  The O.A. statement fails to respect the fact. The fact is that Urriti has only one measurement of the bare fiber. However, the O.A. fails to point it out.

- **As to the "bare fiber", Examiner fails to respect the fact again**, especially after applicant has pointed it out clearly to Examiner in 4-7-2005 Reply and 3-11-2005 Record as follows:

  (1) Brief Description of Arguments to be Presented, 2-15-2005 [fax to the Examiner]:

  "9. **The sentence regarding 'bare fiber' in paragraph 0003 under Section 2 Description of the Related Art is cited from Yoshimura 5073179**. The term bare fiber has been well used, such as in Yoshimura 5073179, and Urruti 5443610 and 5551967, which were examined by the same Examiner." [p.1, last line; p.2, L.1-3] [emphasis added]

(2) Record of the Substance of the Interview of 3-11-2005 [p.3, L.11-12]:

"'Bare fiber' recited in Claims 26-29, 32-34 is a term of art in US 5073179 [Yoshimura] and 5551967 [Urruti] and it is clearly described and shown in figure 1 of the application". [remark added]

(3) 4-7-2005 Reply [p.13, L.17-22]:

"However, the sentence regarding 'bare fiber' in paragraph 0003 under Section 2 Description of the Related Art is cited from Yoshimura 5073179, col. 1, lines 16-18.

'Bare fiber' recited in Claims 26-29 and 32-34 is a term of art in US 5073179 (Yoshimura, col. 1, lines 16-18 and 18-26) and US 5443610 and 5551967 (Urruti, col. 1, lines 22, 24, 25; col. 2, lines 24; and abstract), and it is clearly described and shown in all Figures 1-10 of the application as 'Bare Fiber 5'." [emphasis added]

- **It must point out again that the Examiner is exactly the SAME Examiner for Yoshimura 5073179. This term of art "bare fiber" in paragraph 0003 is Yoshimura's that has been examined by the same Examiner. It is not applicant's definition.**
- **Applicant very respects other experts' work. It is Yoshimura's definition. The term "bare fiber" is well used in Yoshimura, in Urruti, and in the present invention. Especially, applicant clearly points out what "bare fiber" is in all his figures 1-10 in the present invention. Urruti and applicant use term "bare fiber" in the same way as it before the coating.** An ordinary skill uses bare fiber in a same way as it before the coating.
- **Examiner fails to give any scope and contents for the secondary reference Yamamura 6220057 in inquiry (1).**
- **Yamamura relates to different process for manufacturing glass ingot, and not fiber, at best it relates to preform. They are in different scope and content of manufacturing.**
- **The O.A. fails to comply with MPEP 2141 and the cited Rule** above "The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination", in view of the following facts and reasons.
- **There is no motivation or suggestion to combine their processes by Urruti or Yoshimura in view of Yamamura.**

- **It is a well-known and clear fact that fiber manufacturing has two major distinct processes, i.e., the preform manufacturing and the optical fiber drawing. They are totally separated processes and not combined due to a lot of technical difficulties.** Please refer to the prior art.

II.3.2. The O.A. fails to ascertain all major differences between the prior art and the claims at issue. Thus, the O.A. distorts the references and the present invention by ignoring the differences.

- The O.A. only has one sentence to this inquiry (2) [p.15, L14]: "Urruti does NOT have the claimed preform measurement.

- **The O.A. fails to ascertain the following key differences between the prior art and the claim at issue. Even if Urruti and Yamamura were to be combined or modified in the manner proposed, the resultant teachings still omit one or more of the significant physical features** as follows:

  (1) **Claim 30 recites:**

  - "measuring a preform outer diameter by a measurement device located before a heating and melting stage, in which the preform is fed and is changing its geometrical size substantially to form said optical fiber by drawing;"
  - "providing the preform measurement and ... into a control system";
  - "calculating a preform diameter deviation of the measured preform diameter from a preselected nominal preform diameter value,"
  - "generating control signals based on the preform deviation and the fiber deviation for said optical fiber drawing process control;" and
  - "adjusting the feeding speed of said preform and the drawing speed of said fiber as said control signals command"..

  (2) **Claim 31 recites**: "said control signals are further based on the measured preform diameter and the preselected nominal diameter in addition to the preform diameter deviation".

  (3) **Claim 32 recites** double bare fiber monitoring measurements as follows:

- "locating a second bare fiber outer diameter measurement device after the first bare fiber measurement device and before a coating device in which the fiber is coated;"
- "providing said control system with a second bare fiber diameter measurement from the second bare fiber measurement device;"
- "calculating a second bare fiber diameter deviation of the measured second bare fiber diameter from a preselected second nominal fiber diameter value which is less than the first nominal fiber diameter value;" and wherein
- "said control signals are further based on this second bare fiber diameter deviation".

(4) **Claim 33 recites:** "the control signals are further calculated by an algorithm for said adjusting the feeding speed by an adjustment Δv_f to satisfy

$$\Delta v_d = [v_f \cdot (2D \cdot \Delta D + \Delta D^2) + \Delta v_f \cdot (D + \Delta D)^2] / d^2 \ \ldots.$$"

(5) **Claim 34 and claim 36 recite**: "wherein the control signals are further based on historical measurement data of the preform and the bare fiber being drawn over a period".

(6) **Claim 35 recites**: "said control signals are further based on the measured preform diameter and the preselected nominal diameter in addition to the preform diameter deviation" in addition to the features in claim 32.

II.3.3. In resolving the level of ordinary skill in the pertinent art, the O.A. ignores the facts and evidence in Yamamura's a glass ingot manufacturing process, not an optical fiber drawing process, and the fact of un-success of combination, and fails to follow the Rule and the policy by omitting key differences, ignoring Yamamura's teaching away, and ignoring no motivation for an unsuccessful combination, which applicant has pointed out in 4-7-2005 Reply.

(1) The O.A. [p.16, L.1-5] states "The level of ordinary skill includes monitoring what is put into a process. As evidenced by Yamamura, it is known that diameter changes and to take account of the changes and that taking account of the changes. See prior Office actions which discusses Yamamura. It is well within the level of ordinary skill to compensate for the uneven diameters as discussed with Yamamura."

(2) In the above statement, **the O.A. ignores evidences in Yamamura's teaching, i.e.,:**

- how Yamamura takes account of the changes;
- how Yamamura compensates for the uneven diameters "as discussed with Yamamura";
- what Yamamura controls based on his measurement;
- whether or not Yamamura measures the preform diameter of the fiber drawing process as calimed invention and so on.

These are indeed key characteristics that must be addressed and should not have been omitted in this inquiry (3). However, the O.A. fails to resolve these keys.

(3) **Because the O.A. ignores the above key questions and characteristics, the O.A. fails to comply with *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966) and Office policy.**

(4) Yamamura teaches outer diameter measurements above and below the heating, but both **in the furnace**. The measurement 6a in the furnace above the heating controls the furnace temperature distribution within the heating furnace when a variation of a measurement of the outer diameter measuring device 6a exceeds a preset value [refer to col.2, 64-67, col.3, L.1-3]. The measurement 6b in the furnace below the heating is for a relative glass ingot stretch control [refer to col.2, L.55-59].

(5) Yamamura clearly does NOT teach a step of measuring the outer diameter of final glass ingot, at best a preform, after inevitable shrinkage in his process. So, no measurement is after and outer the furnace. His last measurement 6b of glass ingot is in furnace 10 as shown in his Figs. 1 and 5.

(6) Of course, Yamamura does not teach the measurement for the fiber drawing process.

(7) Thus, Yamamura is obviously teaches away from the applicant's claimed present invention of the robust diameter controlled optical fiber drawing process in the ways what to be measured, where to do measuring, how to use the sponsoring data, what to be controlled, and how to control.

(8) Thus, how can ordinary skill, at the level including monitoring what is put into a process

from what Yamamura teaches or suggests, achieve the claimed invention?

(9) It is clear that the ordinary skill is taught away from the claimed invention. The claimed invention is unobvious over the prior art.

(10) **Thus, the O.A. fails to follow MPEP 706.02(j):**

MPEP 706.02(j) states:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See 706.02(j) See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria. [emphasis added]

"To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

The O.A. fails to follow the above cited MPEP and court decisions because there is no motivation for examiner's proposed combination of Urruti and Yamamura, because the combination has no expectation of success, because the references teach away, and because the prior art references do Not teach or suggest All the claimed limitation, as listed and stated in above items.

(11) **The O.A. fails to comply with MPEP 2143.03 All Claim Limitations Must Be Taught or Suggested.**

MPEP 2143.03 All Claim Limitations Must Be Taught or Suggested

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

(12) To respond to the "prior Office actions which discusses Yamamura" in the O.A. [p.16, L.3-4], applicant requests Examiner to see the prior Replies of 4-7-2005 and 5-10-2005 as well as the prior Record of the Substance of the Interview of 3-11-2005, in which applicant has fully responded to the prior Office actions which discusses Yamamura.

(13) On the other hand, the prior O.A. and this 6-6-2005 O.A. do Not respond to All points that applicant addresses in the prior Replies, in view of that the O.A. [p.17, L.4-5] states "The arguments filed 5-10-05 have been considered. However most of those arguments are substantially moot in light of the new grounds of rejection".

The O.A. lacks distinctly and specifically pointing out what and how arguments are substantially moot in light of the new grounds of rejection.

Furthermore, how the objective evidence and facts can be moot?

(14) Moreover, the O.A. does Not respond to the objective evidences provided by applicant in the prior Replies as listed in the following items.

(15) **Examiner fails to "present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references" as required in** *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985) **by the MPEP.**

(16) **The O.A. fails to follow MPEP 2141.02 because the O.A. fails to address the above listed facts including the evidence that Yamamura teaches away from the claimed invention as listed in above (2) (4) and (5).**

MPEP 2141.02: PRIOR ART MUST BE CONSIDERED IN ITS ENTIRETY, INCLUDING DISCLOSURES THAT TEACH AWAY FROM THE CLAIMS

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)

II.3.4. The O.A. fails to consider objective evidence present in the application indicating nonobviousness.

(1) **Examiner's Action** [p.16, L.9-10] **incorrectly states** "Applicant has not provided any objective evidence. All evidence appears to be subjective."

(2) **Applicant has provided a lot of objective evidences to show non-obviousness in his Replies of 10-18-2004, 4-7-2005 and 5-10-2005**, such as listed in II.1.4 [pp.34-42], especially 4-7-2005 and 5-10-2005 Replies have specifically addressed combination of Urruti and Yamamura.

(3) **It is an objective evidence as listed in above II.3.2 and II.3.3 that Urruti in view of Yamamura still lacks the claimed key features listed in II.3.2** [pp.69-71]. **It will be discussed further below.**

(4) **Furthermore, it is objective fact and evidence that there is no motivation from the reference teaching or suggestion or the knowledge generally available to one of ordinary skill in the pertinent art to combine the reference teachings.**

(5) **It is a fact that the examiner's Action fails to follow MPEP 706.02(j) and the court decisions as listed above in item II.3.3 (10)** [p.73].

(6) **It is a fact that the examiner's Action fails to follow MPEP 2143.01 and the court decision because the proposed combination renders the prior art unsatisfactory for its intended purpose of fast and quality manufacturing in view of inoperable combination discussed below (also please see 4-7-2005 Reply, B.3.7** pp.43-44**).**

MPEP 2143.01 THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

Therefore, there is no suggestion or motivation to make the proposed modification.

(7) **The proposed modification can not change the principle of operation of a reference. However, the O.A. violates this Rule, the court decisions and MPEP 2143.01 because the proposed modification or combination changes Uruti's operation principle stated in col. 3, lines 40-57 and Figure 5, and no preform diameter measuring step in his process.**

MPEP 2143.01 THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)

The court reversed the rejection holding the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." 270 F.2d at 813, 123 USPQ at 352.

(8) **It is a clear evidence that if combined or modified as the O.A. suggests, their two process control systems would give conflict controls for preform movement, and thus destroy the references and the whole combined process. Thus, it is inoperative and destroys the references.**

For example, Yamamura's monitor 6b detects a glass ingot outer diameter large, while Urruti's process detects a drawn fiber outer diameter is small in a practical case. Because Yamamura's monitor 6b detects an outer diameter large, therefore in Yamamura's process, "the take-off speed of the drawn rod" should relatively increase in order to maintain the desired rod diameter. However, due to the combination, this take-off speed of the drawn rod in glass ingot process is the preform feeding speed in the fiber drawing process. It means that the preform feeding speed is increased. On the other hand, because Urruit's process detects a fiber outer diameter small, therefore Urruti's control system in Figure 5 should be telling the fiber drawing "tractor mechanism" and the preform feeding speed to slow down, just the opposite of what Yamamura's process commands. The conflict commands destroy both Urruti's process and Yamamura's process.

Similar conflict will also happen when Yamamura's monitor 6b detects a glass ingot outer diameter small, while Urruti's process detects a fiber outer diameter large. Then, the conflict commands destroy both Urruti's process and Yamamura's process.

Moreover, in another case, when Urruti process control needs the feeding speed to fast, it makes Yamamura's glass ingot take-off speed fast and its ingot diameter smaller, then the signals from Yamamura's outer diameter measuring device 6b will change the take-off

speed to slow, just the opposite of what Urruti's process needs. These conflict commands again destroy both Urruti's process and Yamamura's process.

Thus, inevitable changes detected by Yamamura's monitor 6b or Urruti's monitors will lead to destroy both Urruti and Yamamura processes by the proposed combination.

Thus, the proposed combination and modification would be inoperative if it were simultaneously to perform a fiber drawing process from a glass ingot or preform in the Yamamura's process.

Thus, the proposed combination and modification is inoperable and destroys the intended operation and the both reference processes. Thus, the proposed combination and modification is not successful.

Therefore, the O.A. fails to follow one basic criterion: "there must be a reasonable expectation of success" *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) [MPEP 2142].

(9) **It is an objective evidence and fact that the optical fiber manufacturing has two major distinct processes, i.e., the preform manufacturing and the optical fiber drawing. They are totally separated processes and not combined due to a lot of technical difficulties.**

(10) **Furthermore, the O.A. does not follow MPEP 2143.03 because, even as modified or combined of Urruti in view of Yamamura, the resultant teachings still omit one or more of applicant's claimed features as listed II.3.2 (1)–(6)** [pp.70-71] because Yamamura does not teach measuring the outer diameter of final glass ingot after inevitable shrinkage, and his last measurement of ingot is in furnace 10 of Figs. 1 and 5, Urruti and Yamamura's combined control system lacks the features of II.3.2. (1)–(6) [pp.70-71].

MPEP 2143.03 All Claim Limitations Must Be Taught or Suggested

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

As above pointed out, the prior art, including Urruti and Yamamura, has no any teaching or suggestion for measuring the preform of the optical fiber not-in-the-furnace in the fiber

drawing process as claimed in independent Claims 30; and no any teaching or suggestion for the applicant's claimed double outer diameter measurements of the bare fiber after the furnace and prior to coating in Claim 32; and of course, no any teaching or suggestion for the applicant's claimed novel control principles in claims 30-36.

Thus, based on *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974), the examiner fails to establish *prima facie* obviousness of a claimed invention.

(11) **The O.A. fails to establish a *prima facie* case of obviousness because the proposed combination is inoperative, destroys the both references processes, and the proposed combination still omits the applicant's claimed key steps. Moreover, the proposed combination case of Urruti in view of Yamamura does not meet all three basic criteria as required by MPEP 2142 as stated in above item II.3.3 (10)** [p.73].

MPEP 2142 ESTABLISHING A PRIMA FACIE CASE OF OBVIOUSNESS

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

As pointed out, there is no suggestion or motivation to modify or combine the references teachings in the references themselves or in the knowledge generally available to one of ordinary skill in the art.

Second, the O.A. proposed combination will not have a reasonable expectation of success because the combination is inoperative and destroys both processes.

Third, when combined, the resultant references teachings still do not teach or suggest all the claim limitations, such as listed in II.3.2. (1) – (6) [pp.70-71].

Thus, examiner fails to establish a *prima facie* case of obviousness because the O.A. fails to meet three basic criteria that must be met as MPEP 2142 states.

(12) **Therefore, based on the above objective evidences, the court decisions and the Office policy MPEP, Applicant submits that the rejections on these references are improper and should be withdrawn.**

II.3.5. The O.A. [p.16, L.13-14] **states** "It is noted that the equation is merely a mass balance equation. It is impossible to not satisfy the equation." **However, the O.A. statement is wrong, because the equation regards a novel control principle, i.e., control law for optical fiber drawing process. It is not regarding to a mass balance equation. It is Objective Evidence and Fact that it is possible to Not Satisfy the equation in the control as pointed out below.**

- **For example, Urruti's control principle is totally different from the claimed control principle in claim 33, including the equation.**
- **One simple example is as follows: to keep the fiber drawing speed and the preform feeding speed as constant speeds respectively, and disregard whatever the preform diameter is. It is clear that the equation is not satisfied when the preform diameter is not uniform, which is always true in fact.**
- **Thus, the examiner's Action clearly makes wrong statement.**
- **Thus, applicant submits that the rejections on these references and wrong statement are improper and should be withdrawn.**

II.3.6. The O.A. statement [p.16, L.15-16] **is in error: "Claims 35-36 It is deemed that these limitations are inherently met because all of the signals are inherently based on all other parameters."**

- **Examiner fails to show and prove all of the signals are inherently based on all other parameters, especially in view of the references.**
- **The statement that "all of the signals are inherent based on all other parameters" is incorrect.**
- **If the examiner's statement were correct, how would the examiner explain Urruti's claim 1 and claim 4?**

- **Applicant submits that the rejections on these references and the wrong statement are improper and should be withdrawn.**
- **Applicant submits that the rejections on these references and the above wrong statement are Unfair and should be withdrawn in view of Urruti and Yoshimura and the objective evidence.**

II.3.7. The O.A. statement [p.16, L.16-19, p.17, L.1] **fails to show its relationship to claims 35-36. Furthermore, as pointed above, the sentence before this O.A. statement, as listed in above II.3.6, is in error. Please also refer to above I.12** [pp.17-22].

II.3.8. The O.A. wrongly rejects Claim 34 by "Everything is 'based on' nearly everything else to some degree: this applies to claim 34" [p.17, lines 1-2]. **This statement is in error as well.**

- **Examiner fails to show his above new concept is correct in view of "Everything".**
- **It is noticed that Examiner does wrongly state "Everything is inherently 'based on' everything else" in his Action of 4-30-2005** [p.10, line 7]. **That is a wrong concept.**
- **Please see applicant's 4-7-2005 Reply [pp.50-51] to this wrong statement.**
- **That Reply is also valid to show the above little modified statement in this O.A.** [p.17, L.1-2] **is in error.**
- **It is objective evidence in Yoshimura 5073179 that Examiner approves the usage of term "based on" in Yoshimura's claim 1.**
- **Applicant submits that the rejection on this wrong and unreasonable ground should be withdrawn.**

Ⅲ. Response to "Response to Arguments" of the O.A.

Ⅲ.1. Applicant's responses, arguments, evidence and facts in the prior Replies are valid in view of the facts, the laws, court decisions, regulations and MPEP policy, and the above Sections I and II.

The O.A. [p.17, L.4-7] states "The arguments filled 5-10-2005 have been considered. However, most of those arguments are substantially moot in light of the new grounds of rejection. The only rejection that is still maintained is the rejection of claims 30-34."

However, Examiner fails to specifically point out how he considered the all arguments in 5-10-2005 Reply; how he considered the laws, court decisions and MPEP policy that cited in 5-10-2005 Reply; and how he considered all objective evidence and facts presented in 5-10-2005 Reply.

Applicant's response, arguments, evidence and facts in the prior Replies including 4-7-2005 and 5-10-2005 Replies are still clearly valid in view of the facts, the laws, court decisions, regulations and MPEP policy and the above Sections, especially Section II, that distinctly and specifically pointed out that the examiner's new grounds of rejection are in errors.

The O.A. [p.17, L.4-7] **also fails to follow MPEP 707.07(f):**

> **MPEP 707.07(f) – Answer All Material Traversed**
>
> **"Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it."**

Ⅲ.2. The O.A. [p.17, L.14-15] statement is in error: "In this case, the motivation comes from knowledge generally available to one of ordinary skill in the art". Please see the following fact, reasons and evidence. Applicant submits that the rejection on the references should be withdrawn.

- **Examiner fails to point out where that "knowledge generally available to one of ordinary skill" is from, after he recognizes that "Examiner completely understands this – no rejection indicates the motivation comes from the references themselves"** [O.A. p.17, L.17-18].

Thus, the O.A. lacks the grounds to support the above statement.

- **Furthermore, the O.A. states "Presently, one of ordinary skill would combine the relevant teachings to obtain "dramatic improvement" and a significantly more robust process"** [p.17, L.18-20]. [emphasis added]

  Here, a key word is "Presently" that examiner states and recognizes.

  This is objective evidence that the motivation for combining or modifying features of the references is as being based on hindsight from the present invention which applicant submitted in 2000.

- **That the suggestion to combine the references should not come from applicant was forcefully stated in Orthopedic Equipment Co. v United States, 217 USPQ 193, 199 (CAFC 1983)**:

  "It is wrong to use the patent in suit [here the patent application] as a guide through the maze of prior art references, combining the right references in the right way to achieve the result of the claims in suit [here the claims pending]. Monday morning quarterbacking is quite improper when resolving the question of nonobviousness in a court of law [here the PTO]."

- Applicant would further cite the following. As was further stated in **Uniroyal, Inc. v. Rudkin-Wiley Corp., 5 USPQ2d 1434 (CAFC 1988),**

  "[w]here prior-art references require selective combination by the court to render obvious a subsequent invention, *there must be some reason for the combination other than the hindsight gleaned from the invention itself. ... Something in the prior art must suggest the desirability and thus the obviousness of making the combination.*" [emphasis added]

III.3. The O.A. statement [p.17. L.20 – p.18, L.1-2] **is in error, by stating "It is noticed Urruti and Applicant teach the same thing: that using two diameter monitors results in a significantly more robust process (Urruti col. 2, lines 20-22)", because of the following facts and reasons:**

- **The fact is that Urruti and Applicant Do Not teach the same thing.**

- **Urruti does NOT have double diameter monitors on the bare fiber as the claimed present invention,**

- **The O.A. fails to point out the "two diameter monitors" locations which Urruti states in his invention and Applicant also states in the Specification. It is well known that sensor locations are a very challenging problem in control area. The examiner's action wrongly omits this important feature, distorts the fact and the references, and fails to follow the Rule, court decisions and the Office policy as cited above.** (Refer to above II.2.2, II.2.3 and II.2.5 [pp.52-56, 59])

- **The O.A. statement also distorts both the reference Urruti as a whole and the present invention as a whole by ignoring the key differences and characteristics between the reference and the claims at issue.**

- Furthermore, **the O.A. statement fails to ascertain the differences between the prior art Urruti and the claims at issue as required by the Graham v. John Deere, 383 U.S. 1, 148 USPQ 459 (1966).**

- **The important differences include the different locations of the second monitoring, different techniques, different control principles, and the reference lacking of preform measurement and double bare fiber monitoring, in the claimed invention.**

- **The rejection on this kind of wrong statement violates the Rule set forth in Supreme Court statement in *Graham v. John Deere* and the Policy MPEP** [pp.24, 26].

- **The rejection on this kind of wrong statement violates the following court decisions and the Office policy that require to consider the references as a whole and the claimed invention as a whole:**

> **MPEP 2141.02 PRIOR ART MUST BE CONSIDERED IN ITS ENTIRETY, INCLUDING DISCLOSURES THAT TEACH AWAY FROM THE CLAIMS**
>
> A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).
>
> **MPEP 2141 BASIC CONSIDERATIONS WHICH APPLY TO OBVIOUSNESS REJECTIONS**
>
> When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:
>
> (A) The claimed invention must be considered as a whole;
>
> (B) The references must be considered as a whole and must suggest the desirability and thus the

obviousness of making the combination;

(C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and

(D) Reasonable expectation of success is the standard with which obviousness is determined.

Hodosh v. Block Drug Co., Inc., 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

- **The O.A. ignores the important fact and difference that Urruti's second monitor is after coating and uses a "shadow technique"** [col. 2, L.43-44].
- **Applicant's second monitor is before coating.**
- **The new double bare fiber measurements produce new, useful and unexpected results of providing full high speed, high accuracy measurement data, defect detection needed for the high quality fiber drawing process control, especially when the drawing speed is faster and faster and the preform size is larger and larger.**
- **The O.A. distorts the reference by stating the above statement because the Urruti col. 2, lines 20-22, is as follows:** "However, even this technique, although significantly more robust than prior techniques, becomes susceptible to error as the coating thickness becomes large." [emphasis added]
- What Urruti mentioned "this technique" is in col. 2, line 19, "i.e., an IDM of this type can be placed after coater 54". Then what Urruti's invention is to use "**a shadow technique**" for his second monitor located after the coating.
- **Thus, the fact and evidence are that Urruti does not teach the same thing as claimed present invention as a whole.**
- **In view of the above facts, reasons and the Rule, court decisions and MPEP policy, Applicant submits that the rejection on the above wrong O.A. statement and the references should be withdrawn.**

III.4. As to letter/numbering used in 4-7-2005 Reply that O.A. [p.18, L.14-15] **comments "As to the arguments that are referenced by letter and number: such are confusing. Applicant is reminded of the duty under 37 CFR 1.111: ...", the facts are as follows:**

(1) The letter and number denote the items in 4-7-2005 Reply.

(2) Letter A is used for Claim 21 and its dependent claims 22, 24 and 25. Letter B is used for Claim 26 and its dependent claim 28. Letter C is used for Claim 30 and its dependent claims 31-34. Thus, the letter denotes the sub-section.

(3) The number after the letter is used to denote each item in the sub-section.

(4) In the 4-18-2005 O.A., Examiner knows the letter and numbers and writes "the lettering/numbers correspond to Applicant's" [p.2, L.5-6].

(5) Because examiner does not respond to all items after A.3.7 in 4-7-2005 Reply, therefore applicant points out that [5-10-2005 Reply, p.26] and then still uses the same letter and number to summerize those items in the Reply.

(6) For convenience, applicant attaches a table to this Reply to list all item "letter and numbers" and their corresponding page numbers, respectively, in 4-7-2005. Also, another corresponding table is attached for numbering in 5-10-2005 Reply.

(7) In this Reply, applicant uses only numbers for numbering different sections, sub-sections and items, except small letter under one item Also a table listing their corresponding page numbers is also attached.

(8) From the fact and the listed reasons, applicant again requests examiner to respond all materials and evidence submitted by applicant in the prior Replies and the materials and evidence submitted in this Reply.

(9) In the replies, applicant does follow 37 CFR 1.111 to distinctly and specifically points out the errors in the examiner's action and to reply to every ground of objection and rejection in the prior Office action. The Replies do present arguments pointing out the specific distinctions believed to render the claims, including any newly presented claims, patentable over any applied references.

III.5. The O.A. statement [p.19, L.9-12] **is incorrect because to respect the facts is a common law, otherwise how Examiner's Action can make correct conclusion if he does not respect the facts and distorts the facts.**

- In the O.A. [p.9, L.9-12], Examiner states "As to Applicant's request for Examiner to respect the facts, science, engineering and technology to give fair and reasonable analysis and

conclusion. However, patents are legal documents. Laws, regulations, court decisions and Patent Office Policy are at least as important than engineering principles."

- The Examiner's above statement is response to applicant's request in 5-10-2005 Reply [p.15, L.1-3] which is in item I.1.1 [pp.13-15].
- Applicant's request is after applicant points out that

  "Thus, it is the error of the final O.A. which does incomplete citation and distorts Yoshimura's teaching and does unfair and incorrect allegation" [p.14, L.19-20] and "Thus, the final O.A. fails to follow MPEP 706.02 IV (page 700-21)" [p.14, L.21].
- Applicant then states in 5-10-2005 Reply [p.14, L.25-27 to p.15, L.1-3] that

  "On the other hand, applicant is a frequent reviewer for more than 20 international journals with high reputation as a fair and expert reviewer. His opinion is that it is basic and important to respect facts and provide fair, objective and constructive review comments as a referee. Applicant respectfully requests the Examiner to respect the fact and science, engineering and technology to give fair and reasonable analysis and conclusion." [emphasis added]
- **Thus, it is clear that Examiner's above statement is incorrect because the following fact and reasons:**

  (1) **There are No any patent laws, regulations, court decisions or Patent Office Policy to state that Examiner should Not respect the fact and science, engineering and technology, or Examiner should not give fair and reasonable analysis and conclusion.**

  (2) **Furthermore, to respect the facts is a common law.**

  (3) **There is no conflict between "to respect the fact and science, engineering and technology to give fair and reasonable analysis and conclusion" and "laws, regulations, court decisions and Patent Office Policy".**

  (4) **Moreover to give a fair and reasonable analysis and conclusion is of course required in patent examination.**
- **Here, applicant again respectfully requests Examiner to respect the fact and science,**

engineering and technology to give fair and reasonable analysis and conclusion.

- **Of course, applicant respectfully requests Examiner to comply with laws, regulations, court decisions and Patent Office Policy.**

III.6. The O.A. statements [p.19, L.13-22; p.20, L.1-3; p.21, L.11-20] **have errors as pointed out below:**

(1) It is the fact that Yamamura is in different scope of Urruti.

The O.A. states "This is not (by itself) very relevant. No two patents are exactly of the same scope – thus every two patents are of different scope."

However, it is important to follow the MPEP policy to comply with Supreme Court statement in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966):

> "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims as issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter to patented. As indicia of obviousness or nonobviousness, these inquires may have relevancy ...
>
> This is not to say, however, that there will not be difficulties in applying the nonobviousness test. What is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context. The difficulties, however, are comparable to those encountered daily by the courts in such frame of reference as negligence and scienter, and should be amenable to case-by-case development. We believe that strict observance of the requirements laid down here will result in that uniformity and definitiveness which Congress called for in the 1952 Act." [emphasis added to see the O.A. error]

MPEP states:

> "Office policy is to follow Graham v. John Deere Co. in the consideration and determination of obviousness under 35 U.S.C. 103. As quoted above, the four factual inquires enunciated therein as a background for determining obviousness are as follows:
>
> (A) Determining the scope and contents of the prior art;
>
> (B) Ascertaining the differences between the prior art and the claims in issue;

(C) Resolving the level of ordinary skill in the pertinent art; and

(D) Evaluating evidence of secondary considerations."

To determine the scope and contents of the prior art is step (A) that must be strictly observed and should not be ignored. However, the above statement is obviously in error in view of *Graham v. John Deere Co.* and Office policy.

(2) Step (A) to determine scope and contents is also necessary for further going to Step (B) to ascertain the differences between the prior art and the claims at issue. As pointed out above II.3.2 [pp.69-71], the O.A. also fails to ascertain the differences by ignoring the important differences, e.g., different control principles and still lack of measuring the outer diameter of final glass ingot, at best a preform, after inevitable shrinkage in his process, even as combined. More over the proposed combination is inoperable and destroys the intended operation of the primary reference's invention as pointed out above.

(3) Step (A) to determine scope and contents is also necessary for further going to Step (C) to resolving the level of ordinary skill in the pertinent art.

It is the objective evidence and fact that the preform manufacturing and the optical fiber drawing are two distinct and separated processes. Please refer to the prior art. The two processes belong to two different departments respectively in the optical fiber art.

(4) It is clear that the O.A. statement [p.19, L.13-22] is wrong by using step (B) to ignore step (A). The O.A. fails to comply with Supreme Court decision "We believe that strict observance of the requirements laid down here will result in that uniformity and definitiveness which Congress called for in the 1952 Act." [emphasis added]

(5) Applicant would like to ask Examiner a fact and questions: why does optical fiber manufacturing need these two separated processes and why not to combine them in the manufacturing, different from Examiner's suggestion to combine them?

(6) **The objective evidence is that the prior art has No any teaching of or suggestion to achieve the claimed present invention, even though a series of new inventions have been issued including Yoshimura, Urruti, and Kohei in more than a decade since Harding's invention in 1986 to the present invention submitted in 2000.**

(7) The differences between Yamamura and the Claims at issue are not only the one between glass ingot (rod) and fiber, but also different control principles, different process steps, and different processes.

(8) The Examiner's statement is further in error that "Examiner is of the opinion that the difference is very small to one of ordinary skill in the Optical fiber art". It is because the difference is Not small for making the preform and drawing the optical fiber.

It is an objective evidence and clear fact that fiber manufacturing has two major distinct processes, i.e., the preform manufacturing and the optical fiber drawing. They are totally separated processes and not combined due to a lot of technical difficulties. The two processes belong to two different departments respectively in the optical fiber art. Please refer to the prior art.

(9) The O.A. statement [p.21, L.11-12], that "As to the arguments that preform manufacture and fiber drawing are two different departments – this is not very relevant", is not correct because they are two different processes belong to two different departments in Optical fiber art and it must be considered according to Supreme Court *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966).

(10) The examiner's statement [p.21, L.16-20] has error because it fails to comply with Supreme Court *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966), Step (A) to determine different scope and contents of the prior art.

The fact is as stated as follows:

> [5-10-2005 Reply, p.22, L.5-8] "The above stated fact is correct that the optical fiber manufacturing has two major distinct processes, i.e., the preform manufacturing and the optical fiber drawing. **They are two different departments for ordinary skill ones in the art and companies. Examiner fails to give evidence to support his allegation 'This is incorrect'**." [see 4-18-2005 O.A., p.2, L.30]
>
> [5-10-2005 Reply, p.47, L.14-18] "As stated above, it is a well-known and clear fact that optical fiber manufacturing has two major distinct processes, i.e., the preform manufacturing and the optical fiber drawing. They are totally separated processes and not combined due to a lot of technical difficulties. Please refer to the prior art.

They are two different departments for ordinary skill ones in the art and companies."

Moreover, examiner's early statement [p.19, L.14-15] is that "No two patents are exactly of the same scope – thus every two patents are of different scope." Then, examiner made late statement [p.21, L.11-12, 16-20] in conflict with his above early statement.

(11) The O.A. [p.21, L.17-18] fails to identify the field difference of endeavor of all the references: one is optical fiber drawing process and one is the preform manufacturing process. These are two different processes and different fields, as listed in the references and the prior art including many issued patents in these two different fields. The O.A. just uses a broad field "optical fiber manufacture" to ignore two different fields: one is optical fiber drawing process and one is the preform manufacturing process.

The present invention clearly states the scope "optical fiber drawing process" in the invention title [L.1] and abstract [L.1-2], and states the Field of the Invention as "The present invention relates to optical fibers and a process for optical fiber drawing" [p.2, paragraph 0001].

The reference Yamamura clearly states his scope "Apparatus and method for drawing a glass ingot" in his invention title [L.1] and abstract [L.1]. In his claims, he clearly recites: "A method for drawing a glass ingot" in claim 1 [L.1] preamble, and "An apparatus for drawing a glass ingot" in his claim 4 [L.1] preamble, that are his two independent claims.

Yamamura clearly states his Field of the Invention as "This invention relates to a method for drawing a glass ingot wherein the glass ingot is drawn to a predetermined outer diameter to obtain a glass rod or preform for an optical fiber having the predetermined outer diameter" [col. 1, lines 6-10]. [emphasis added]

So, the objective evidence is that Yamamura's process scope and field is for drawing a glass ingot, and not fiber, at best it relates to preform, as Yamamura states.

Urruti states scope in his invention title as "Method for controlling fiber diameter during drawing" and in his abstract as "A system for controlling the drawing of a hermetically-coated optical waveguide fiber from a preform" [L.1-2]. He clearly states his Field of the Invention as that "This invention relates to methods and apparatus for controlling the

diameter of an optical waveguide fiber during the drawing process" [col. 1, L.6-10].

Thus, the facts are clearly that:

- The O.A. distorts the Field of the Invention as clearly stated in Yamamura;
- The O.A. fails to determine the scope of Yamamura in inquiry (1) [p.15, L.8-11];
- Even more, the O.A. [p.15, L.8-11] does not give the scope and contents for Yamamura by omitting Yamamura in inquiry (1), while examiner uses Yamamura 6220057 as reference [p.15, L.5];
- Furthermore, the O.A. [p.15, L.12-14] fails to ascertain any difference between Yamamura and the claimed present invention.

Important is the fact that the different departments show the different scopes of the references, and that to determine the scope is required by the Supreme Court statement in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966) and the MPEP.

(12) The O.A. statement [p.21, L.16-20] is in error and also fails to ascertain the differences between Yamamura and the claimed present invention as pointed out specifically before and above II.3.2 [pp.69-71], e.g., different methods; different principles; different problems, Yamamura is for glass ingot, at best preform, not the fiber; different processes; different scope and different departments;.

(13) **These facts and objective evidence prove that the claimed present invention is unobvious**.

(14) **Thus, applicant submits that the rejections on these references combination are improper and should be withdrawn.**

III.7. The O.A. [pp.20-21, p.23] **rejection on an allowable term "based on" is unreasonable, unfair, incorrect, and in error as pointed out above in I.12 and below:**

(1) **The term "based on" is an allowable term used in patents. Especially, it is objective evidence that the term "based on" is allowed in Yoshimura and Kenmochi's inventions which are examined by the Same Examiner who is examining the present invention. Please see above I.12 for many others**[17-22].

(2) **The O.A.** [p.20, L.4-9] **statement is in error because the fact is as follows:**

- **Examiner's concept of the "based on" in his 2-14-2005 Action** [p.10] **is totally wrong, as applicant has distinctly and specifically pointed out in 5-10-2005 Reply** [pp.34-36] **and 4-7-2005 Reply** [pp.49-51].
- The 2-14-2005 O.A. [p.10] wrongly states that "As to the limitations that refer to the control being 'based on' diameters, deviations, etc. Such is inherent. Everything is inherently 'based on' everything else. ... ... Every parameter essentially is inherently 'based on' every other parameter." [emphasis added]
- It is very clear that examiner's above statement is wrong because such is Not inherent. Please see item C.3.6. in the Replies [4-7-2005, pp.49-51; or 5-10-2005, pp.34-36] for details.
- What should be based on, 'the amount of mass', or weight, or 'diameters', or 'deviations', or 'everything else'? Which one?

  What is to be controlled based on 'everything else', the furnace temperature distribution, or the drawing speed, or the feeding speed, or 'everything else'?

  What is control law or rule, i.e., principle in the process control, or 'everything else'?

  IT IS TOTALLY NOT INHERENT.

  Here the important key is to identify what is based on. It is entirely not inherent.

(3) **Yoshimura 5073179, claim 1** claims "... the drawing being carried out at a drawing rate that is controlled **based on** a deviation of the measured diameter from a preselected outer diameter" [emphasis added].

Because it is based on a deviation, then a comparison operator (Fig. 2, Yoshimura) is needed, and a subtraction operation on the measurement from a preslected diameter is executed.

This example clearly shows that the term "based on" or what to be based on is not inherent, but introduces significantly different calculations and limitations.

Thus, it is clear that "Really, the phrase 'based on' introduces a specific control law or regulation for a control system and a control process" as WHAT is based on.

(4) **What to be based on for a control and what to be controlled based on that are very important issues in automatic control area**, including process control, **especially for very complex processes including optical fiber drawing process**.

Here, the key is WHAT to be "based on". Different features to be based on are definitely make different limitations.

In the claimed inventions, the Claims specifically state key features to be based on.

Claims 31 and 34 recite "said control signals are further based on the measured preform diameter and the preselected nominal diameter in addition to the preform diameter deviation".

Here, the claims do Not say "based on everything else".

The claims specifies what to be based on is "the measured preform diameter" $D+\Delta D$ "and the preselected nominal diameter" D "in addition to the preform diameter deviation" ΔD.

This novel, useful and unobvious control law, as disclosed in the specification of the present invention, is totally different from the conventional selection of a deviation only. It Is Not Inherent.

Thus, claims 31 and 34 clearly have a novel, useful and unobvious limitation over the prior art, so that the claims distinguish from and are patentable over the prior art.

(5) **Examiner wrongly states "Everything is inherently 'based on' everything else".**

The concept that "Everything is inherently 'based on' everything else" is totally wrong.

For example, today's date is clearly not inherently based on today's temperature, and is not inherently based on the preform diameter measurement.

There are many other counter-examples to the examiner's statements.

(6) **Examiner's statement** [O.A., p.20, L.22-24], that "For example, if a preform has a 50% deviation in diameter, the 50% deviation will inherently effect the process – regardless of whether a computer measures the deviation or not", **ignores differences between the prior art and the present invention**, including the control principles differences, especially the differences between having a control based on the calculated preform

diameter deviation of the measured preform diameter from a preselected nominal preform diameter value as clearly claimed in claim 30 for adjusting the preform feeding speed and fiber drawing speed and Non-having this control in the prior art.

The above statement is another clear objective evidence that the claimed present invention is Unobvious.

The new control principles as claimed in claims 31 and 33 are totally Foreign to the prior art. The claimed present invention patentably differs from the prior art.

(7) In response to the O.A. page 21, paragraph 2, **the broadest reasonable interpretation of term "based on" should be from the well-known Dictionary.** This is the applicant's answer to examiner's question in that paragraph.

Since the term "based on" is commonly used in patents, its broadest reasonable interpretation should be clear and common.

(8) **Examiner fails to ascertain key differences of what is "based on" between the prior art and the claims at issue as required in Supreme Court Graham v. John Deere Co. , 383 U.S. 1, 148 USPQ 459 (1966), inquiry (B).**

(9) **Applicant always desires to have and to exercise the "opportunity and responsibility to remove any ambiguity in claim term meaning by amending the application".**

(10) **However, the term "based on" is allowable term in the patents.**

(11) **It is required that Examiner should not break and disregard the words following the term "based on". They should be considered as a whole to observe the patentable differences from the prior art.**

(12) **It is clear that claims 30-36 are distinctly patentably differs from the references in view of the claimed distinct features,** e.g., "said control signals are further based on the measured preform diameter and the preselected nominal diameter in addition to the preform diameter deviation".

(13) In the O.A. [p.23, L.6-7], **Examiner states:** "Applicant is required to point out specifically where those terms are used and specifically where the definition of "based

on" is derived from. Until such is pointed out, it is deemed that every US patent which uses "based on" should be interpreted as using the broadest reasonable interpretation – rather than the narrow interpretation that Applicant is using."

First, applicant does not do any narrow interpretation for the term "based on".

Second, applicant clearly does point out that examiner's interpretation and concept for "based on" is totally wrong, e.g., "Such is Inherent. Everything is inherently 'based on' everything else" [2-14-2005 O.A., p.10, L.7].

Applicant has specifically pointed out "based on" used in claims in US patents as listed above in I.12 [pp.20-22].

Also, in 4-7-2005 Reply, applicant already specifically points out that "The term "base on" is a valid term and introduces specific calculations and limitations in the claims. This term has also been widely and well used in many claims of other patents, including Yoshimura 5073179 and Kenmochi 6178778" [4-7-2005 Reply, p.49-50. item C.3.6]. Please also see above items I.12 [pp.17-22] and III.7 (4) [pp.92-93].

It is objective evidence that Yoshimura 5073179, claim 1 claims "... the drawing being carried out at a drawing rate that is controlled based on a deviation of the measured diameter from a preselected outer diameter" [col.6, L.29-31]. [emphasis added]

Yoshimura uses "based on" in his claim 1 and abstract, but not in his other specification part.

Yoshimura is examined by the Same Examiner who is examining the present invention.

It is objective evidence that "based on" is an allowable language in US patents including those examined by the same Examiner.

It is not necessary to ask applicant "where the definition of 'based on' is derived from" in US patents in view of the above facts and evidence and the Rule and the policy.

(14) **The O.A.** [p.23, lines 11-14] **incorrectly states** that "Applicant's general assertions regarding US patent are not very relevant. There is nothing to show that any patent was

allowed because of any 'based on' limitation. Applicant needs to explicitly point out how the relevant US patents were allowed because of the 'based on' language."

Applicant has explicitly pointed out facts and evidence in the 5-10-2005 Reply [C.3.6, pp.34-36] **and 4-7-2005 Reply** [C.3.6, p.49-51], **e.g.**

- "The term "base on" is a valid term and introduces specific calculations and limitations in the claims. This term has also been widely and well used in many claims of other patents, including Yoshimura 5073179 and Kenmochi 6178778." [5-10-2005 Reply, C.3.6, p.34, L.12-14] [4-7-2005 Reply, C.3.6, pp.49-50].
- "Yoshimura 5073179, claim 1 claims '... the drawing being carried out at a drawing rate that is controlled based on a deviation of the measured diameter from a preselected outer diameter' [emphasis added]." [5-10-2005 Reply p.35, L.18-20]
- The important facts and evidence is that Yoshimura 5073179 and Kenmochi 6178778 are examined by the same Examiner who is examining the present invention.

The term "based on" is a well commonly used language.

(15) **The O.A. statements** [p.23, L.15-18] **are in error because of the following reasons:**

- [O.A. p.23, L.15-18] "It is further argued that 'based on' in claim 31 defines that 'the control signals are generated by computation .....' Examiner could find no basis for such a definition. Claim 33 does not require any step of generating or computing. Applicant is not permitted to redefine what is meant by 'based on'."
- The fact is that claim 31 is a dependent claim of claim 30. Claim 30 recites:

  "calculating a preform diameter deviation of the measured preform diameter from a preselected nominal preform diameter value, and a fiber diameter deviation of the measured fiber diameter from a preselected nominal fiber diameter value;

  generating control signals based on the preform deviation and the fiber deviation for said optical fiber drawing process control; and

  adjusting the feeding speed of said preform and the drawing speed of said fiber as said control signals command". [emphasis added]

  Furthermore, claim 31 recites:

"said control signals are further based on the measured preform diameter and the preselected nominal diameter in addition to the preform diameter deviation".

- The fact is that claim 33 is a dependent claim of claim 32 and that claim 32 is a dependent claim 30. Furthermore, claim 33 recites:

  "the control signals are further calculated by an algorithm for said adjusting the feeding speed by an adjustment Δv_f to satisfy

  $$\Delta v_d = [v_f \cdot (2D \cdot \Delta D + \Delta D^2) + \Delta v_f \cdot (D + \Delta D)^2] / d^2$$

  where ΔD is the preform diameter deviation, $D+\Delta D$ is the measured preform diameter, D is the nominal perform diameter, v_f is a predetermined perform feeding speed, Δv_d is an adjustment of the drawing speed, and d is the nominal fiber diameter".

- [5-10-2005 Reply, p.36, L.1-10]: "Claims 31 and 33 claim 'said control signals are further *based on* the measured preform diameter and the preselected nominal diameter in addition to the preform diameter deviation'. This novel, useful and unobvious control law, as disclosed in the specification of the present invention, is totally different from the conventional selection of a deviation only. It Is Not Inherent. This claimed phrase 'based on' defines that the control signals are generated by computation on not only the preform diameter deviation ΔD, but also the measured preform diameter $D + \Delta D$ and the preselected nominal diameter D. It is not only a computation on the deviation ΔD. Thus, the claimed phrase "based on" clearly defines a novel, useful and unobvious limitation over the prior art, so that the claim distinguishes from and is patentable over the prior art."

- Thus, the above facts clearly show that the above 5-10-2005 Reply p.36, L.1-10, is correct in view of claims 30, 31 and 33.

- The above facts also clearly show that the O.A. statements [p.23, L.15-18] are in error.

(16) **The O.A. statement** [p.21, L.1-2], **that "the claims are not limited to any specific control law", is in error.**

Claim 30 clearly recites that:

"calculating a preform diameter deviation of the measured preform diameter from a preselected nominal preform diameter value, and a fiber diameter deviation of the measured fiber diameter from a preselected nominal fiber diameter value;

providing the preform measurement and the fiber measurement into a control system which controls a feeding speed of said preform into the heating and melting stage and a drawing speed of said fiber;

generating control signals based on the preform deviation and the fiber deviation for said optical fiber drawing process control; and

adjusting the feeding speed of said preform and the drawing speed of said fiber as said control signals command".

Claims 31-36 are dependent claims that define further limitations, e.g., **Claim 33** further recites key feature limitation to control law as cited in above III.7 (15) [p.97].

(17) **Therefore, from the above evidence, facts and reasons, the claimed invention distinctly and patentably differs from the references including Yoshimura, Harding, Urruti and Yamamura. It is Unobvious over the references.**

(18) **Applicant therefore respectfully submits that the rejection to Claims 30-36 and others based on the above O.A. statement is improper and should be withdrawn because these claims are "based on" their patentable distinguished limitations respectively.**

III.8. The O.A. [p.21, L.21-22] **wrongly cites MPEP 2145 to reject the argument and the facts because the examiner's proposed combination of Urruti and Yamamura is inoperable, has no expectation of success and destroys the references, as pointed out below again.**

- **"It is a clear evidence that if combined or modified as the O.A. suggests, their two process control systems would give conflict controls for preform movement, and thus destroy the references and the whole combined process. Thus, it is inoperative and destroys the references**". [II.3.4 (8), pp.76-77]

(Also refer to 4-7-2005 Reply, p.22, paragraphs 4-6; p.23, paragraph 1; and 5-10-2005 Reply,

p. 21, L.10-22, item I.2.9)

Therefore, the O.A. fails to follow one basic criterion: "there must be a reasonable expectation of success" *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) [MPEP 2142].

- **Here, the fact is that examiner's proposed combination is physically combinable, however, the combination would give conflict controls for preform movement and thus destroy the references and the whole process.**

  While MPEP 2145 is for arguing that prior art devices are not physically combinable, thus examiner wrongly cites MPEP 2145 for supporting his proposed combination which is inoperable, and destroy the references and the product optical fiber, and is no expectation for success.

- **The proposed combination of Urruti and Yamamura does not meet all three basic criteria as required by MPEP 2142.** [refer to above II.3.4 pp.75-79]

  MPEP 2142 ESTABLISHING A PRIMA FACIE CASE OF OBVIOUSNESS
  To establish a prima facie case of obviousness, three basic criteria **must** be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). [emphasis added]

- **The present invention is not a combination of Urruti and Yamamura because the present invention does not combine the fiber drawing process and the preform manufacturing process.**

- **The fact is that the fiber drawing process and the preform manufacturing process are two separated processes and are not combined in view of the evidence of the prior art.**

- **Thus, based on the above objective evidences, the court decision and the Office policy MPEP, Applicant submits that the rejections on these references are improper and should be withdrawn.**

Ⅲ.9. The Examiner's action statement [p.22, L.8-17] **is wrong by stating "Applicant has not supplied facts, materials and evidences", in view of the following facts and evidence and reasons.**

(1) **The fact is that "the present invention does not combine two distinct and separate processes of preform manufacturing process and fiber drawing process"** [4-7-2005 Reply, p.42, L.27-29, B.3.1].

(2) **"It is a well-known and clear fact that fiber manufacturing has two major distinct processes, i.e., the preform manufacturing and the optical fiber drawing. They are totally separated processes and not combined due to a lot of technical difficulties.** Please refer to the prior art."
[4-7-2005 Reply, p.43, L.15-18, B.3.6; p.46, L.24-27, C.2.4] [emphasis added]

(3) **The fact is that "Moreover, if combined or modified as the final O.A. suggests, their two process control systems would give conflict controls for preform movement, and thus destroy the references and the whole combined processes."**
[4-7-2005 Reply, pp.43-44, B.3.7; p.47, L.3-6, C.2.6]

(4) **The fact is that "Even if Urruti and Yamamura or Knemochi were to be combined or modified in the manner proposed, the resultant teaching still omit one or more of the significant physical features in Claim 28** as follows:..."
[4-7-2005 Reply, pp.44, B.3.8] (also refer to above II.3.2, pp.69-71)

(5) **The evidence is that "Yamamura does not teach measuring the outer diameter of final glass ingot after inevitable shrinkage. His last measurement of ingot is in furnace 10 of Figs. 1 and 5."** [4-7-2005 Reply, pp.44-45, B.3.9]

(6) **"The Examiner fails to follow MPEP 707.07(f) -- Answer All Material Traversed 'Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it', because the examiner fails to answer the evidences, rationale or arguments in the remain part of applicant's 4-7-2005 Reply (pp. 26 – 66) and the Examiner states:**

'Examiner has reviewed the rest of Applicant's arguments. They are not convincing

for substantially the same reasons given above. Namely, the arguments are directed to features that are not required by the claim; or they are based on allegation without any evidence or rationale to support them; or that they are deemed to be irrelevant because applicant has not pointed out why they are relevant and Examiner is not aware of any relevant.'" [4-18-2005 O.A., p.2, L.39-42]
[5-10-2005 Reply, p.26, lines 3-13] [emphasis added].

The above examiner's statement in 4-18-2005 O.A. is arbitrary and wrong to the 4-18-2005 Reply from page 26 to page 66. (Please see 4-7-2005 Reply, pp.26-66)

(7) [5-10-2005 Reply, p. 26, L.20-22; pp.26-43] **The 5-10-2005 Reply further states "For convenience and a brief summary, the followings are just the highlighted items after A.3.7 in 4-7-2005 Reply. Please refer to the Reply (pp. 26–66) for those details and supporting materials, facts and evidences. ... ..."**

(8) **The 5-10-2005 Reply, p.30, B.2.7 statement on unexpected results is based on the following facts and evidence:**

- **To compare the present invention with the examiner's proposed process "to omit the hermetic coating" in Urruti's process** [2-14-2005 O.A. p.8, L.17-19] **even though there is no any motivation in the references and the public available knowledge, and the omission is against the Urruti's goal and principle.**
- **The Urruti's second measurement technology as he clearly teaches uses "Shadow gauge".** "This technique requires 'averaging a series of measurements. The average, however, needs to be made over a period of time on the order of a second which makes this technique unsuitable for the high speed diameter measurements needed for process control' as Urruti recognized (col. 2, 46-51).

  From Urruti Figs. 2 and 4, it can be observed that his drawing speed is around 8.5~9.9 m/s (1995), and a second delay would damage about 9m fiber quality. A high speed and high accuracy measurement is urgent and critical for a higher speed fiber drawing process." [5-10-2005 Reply, p.30, L.9-16]. [emphasis added]
- [5-10-2005 Reply, p.30, L.17-22] "At the same time, applicant will further point out that his new useful and unobvious method as claimed in Claim 26 produces many

advantages, e.g., providing high speed, high accuracy data of the second measurement needed for process control and defect detection, ability to using popular measurement technique over Urruti (refer to Urruti 5551967 Abstract). This also proves that the present invention method claimed in Claim 26 produces new and unexpected good results and hence is unobvious". [emphasis added]

- [Urruti, col. 3, L.58-64] "In the preferred embodiments of the invention, the first signal is produced by an IDM so as to provide high speed, sub-second data suitable for performing statistical calculations to ensure fiber quality as well as to provide information regarding defects in the fiber, and the second signal is produced by a non-IDM diameter measuring device such as one employing a fiber shadow technique." [emphasis added]
- In the present invention second measurement technique is on the bare fiber and has advantage "high speed, sub-second data" that would not be hold in Urruti's process by omitting the hermetic coating step as examiner proposed.
- The above listed items are the facts, data and evidence regarding the present invention and the examiner's proposed process in Urruti's process by omitting the hermetic coating step.
- The above listed results are new and useful and unexpected results by the present invention compared with the examiner's proposed process, even though the fact is that hermetic coating is needed and desired.
- The above results are not recognized by Examiner because he did not address these significant objective differences that are the fact and evidence as cited above when examiner proposed to omit the hermetic coating step in Urruti's process.

III.10. Examiner's allegation [p.22, L.22-24], **"the claims are not limited to a specific algorithm" and "the claims are so broad that they probably encompass algorithm that fail to get unexpected results", is incorrect, as pointed out below.**

(1) **From the above item III.9 (8), it is clear these objective new, useful and unexpected results are not the characteristics form the algorithm. It is from the measurement device and the measurement objective – bare fiber!**

(2) **The claimed features patentably differ from the references, as presented in above section II and this section III, especially II.1.2, II.2.2 and II.3.2** [pp.30-32, 52, 69-71], **including control principles. (Please see recitation in III.7 (15)-(16)** [pp.96-98])

III.11. As to the O.A. [p.23, L.19-21] **comment on "historical measurement data", please see above item I.13** [pp.22-23].

From the Specification as a whole regarding the historical measurement data, time-lag and time lead measurement, and arranging the measurement locations to reduce the time-lead and time lag, it is clear that to use historical data is also to reduce time-lag and time-lead in view of time and they are time-lead and time lag measurement data.

III.12. As to Examiner's statement regarding the invention matter [p.24, L.1-3], **Applicant again respectfully requests examiner to respect the facts, science, engineering and technology, and to comply with the laws, court decisions and MPEP policy, and to give fair and reasonable analysis and conclusion on the present invention.**

The fact is that Applicant states "On the other hand, applicant is a frequent reviewer for more than 20 international journals with high reputation as a fair and expert reviewer. His opinion is that it is basic and important to respect facts and provide fair, objective and constructive review comments as a referee. Applicant respectfully requests the Examiner to respect the fact and science, engineering and technology to give fair and reasonable analysis and conclusion." [5-10-2005 Reply, p.14, L.25-27; p.15, L.1-3] [emphasis added]

Examiner states that "Arguments based on Applicant's technical expertise are noted – however, patents are mostly legal documents. It does not matter whether the inventor is a person of great learning or a 5-year-old child. Only the invention matters, not the inventor." [O.A. p.24, L.1-3]

Applicant also respectfully requests Examiner to recognize the present invention is a technical invention of new, useful and unobvious methods for the optical fiber drawing process, which can not be a 5-year-old child's invention.

III.13. The O.A. [p.24, L.4-7] **incorrectly states** "It is deemed that all arguments that pertain to the rejection based on the combination of Urruti and Yamamura were addressed. Any

that not addressed were overlooked because they were not clearly indicative as being related to the rejection was previously maintained and is still maintained."

The reasons and the facts are listed as follows as examples:

(1) **The O.A. fails to address the fact and arguments** that pertain to the rejection based on the combination of Urruti and Yamamura **presented in the 5-10-2005 Reply** [p.33, L.13-22, C.2.7] **and 4-7-2005 Reply** [p.47, L.7-26, C.2.7]**:**

"Even as modified or combined in the proposed manner for Urruti with Yamamura or Knemochi, and even further assumed the combination or modification workable, the resultant teaching still omit one or more of the significant physical features in Claim 30 as recited below:

i. 'measuring a preform outer diameter by a measurement device located before a heating and melting stage' out the furnace after inevitable shrinkage;

ii. 'providing the measurement data into a control system which controls a feeding speed of said preform into the heating and melting stage and a drawing speed of said fiber';

iii. 'calculating a preform diameter deviation of the measured preform diameter from a preselected nominal preform diameter value';

iv. 'generating control signals based on the preform deviation and the fiber deviation for said optical fiber drawing process control, and adjusting the feeding speed of said preform and the drawing speed of said fiber as said control signals command'.

More important is that the control principle and method of the present invention is entirely foreign to Yamamura, Urruti, Yoshimura and Kenmochi, or any combination thereof, ...

Therefore Claim 30 is Unobvious over the prior art from above C.1 and C2."

The above cited indicative facts and evidence show that the rejection based on the combination of Urruti and Yamamura is wrong. However, the O.A. fails to address that.

(2) **The O.A. clearly fails to address the materials clearly indicative to the rejection based on combination of Urruti and Yamamura in the 5-10-2005 Reply** [p.32, L.25-29] **and 4-7-2005 Reply** [p.46, L.8-12] **as follows:**

"**C2.1.** Claim 30 Patentably Differs from Urruti and Yamamura and Kenmochi on the basis that there is (1) outer diameter measurement of preform prior to entering furnace; (2) novel control principle by utilizing preform measurement to control the preform feeding speed and fiber drawing speed. The references lack one or more of these significant features as applicant claimed."

(3) **The OA. fails to answer the following specific and clear fact and evidence stated in 5-10-2005 Reply** [p.33, lines 8-9] **and 4-7-2005 Reply** [p.46, L.28, p.47, L.1-2] **as recited below:**

"**C.2.5.** "Yamamura does not teach a step of measuring the outer diameter of final glass ingot after inevitable shrinkage in his process."

(4) **The O.A. fails to answer the 5-10-2005 Reply** [p.19, L.15-20] **as recited below:**

"Moreover, even as modified or combined in the manner proposed, the resultant teaching still omits one or more of the significant physical features in Claim 21 (see 4-7-2005 Reply, pages 24-25). Thus, these are evidence or rationale to support applicant's statement.

In addition to their specifications, please see the figures of Yoshimura, Urruti and Yamamura processes, and the figures of the present invention, that show the present invention as claimed in claims 21-22, 24-26, 28 and 30-36 patentable over the prior art."

(5) **The O.A. again fails to answer the applicant's clearly indicative facts and evidence which further show the rejection is wrong:**

"**C.3. Dependant Claims 31-34 Are A Fortiori, Unobvious and Patentable Over the Prior Art including Urruti and Yamamura and Kenmochi**" [4-7-2005 Reply, p.48, lines 1-2]

"**There is no basis to reject Claims 31-34 for the same reasons to Claim 28 because Claim 28 is unobvious over the prior art as stated in B.3. ...**" [4-7-2005 Reply, p.48, L.5-12]

Ⅳ. As to O.A. statement "Kohei (JP 06-206734) is cited as being cumulative to Urruti", Applicant submits that in view of Yoshimura, Urruti and Kohei, the clear and objective evidence of issuing these patents further clearly and strongly show that the claimed present invention is Unobvious and Patentable.

Ⅳ.1. Kohei's process lacks the key features in the claimed present invention, such as: (1) outer diameter measurement of preform prior to entering furnace; (2) double outer diameter measurements of the bare fiber after the furnace and prior to coating; and (3) applicant's novel control principles and methods.

Ⅳ.2. Kohei's process control uses only one bare fiber diameter measurement at any time: from device 21 at the beginning period or from device 14 at the time when the drawing speed reaches a predetermined speed, but not both at any time.

Thus, Kohei's process does not use double outer diameter measurements of the bare fiber for the fiber drawing process control.

Kohei clearly states his invention in section **[Means for Solving the Subject]** as follows:

> **The invention method of the optical fiber manufacturing to achieve said objective is a manufacturing method which draws the optical fiber from the heated and melted optical fiber preform in a wire-drawing furnace; the feature of said method is that: at a drawing speed rising period of the optical fiber which is out from the wire-drawing furnace and in the measurement sight, the method uses a wide-sight measurement device located between the wire-drawing furnace and a narrow-sight outer diameter measurement device for the fiber diameter control to measure the optical fiber outer diameter, and at the time after a stable fiber drawing speed is reached, the method switches to using the narrow-sight measurement device to measure the optical fiber outer diameter.** [col. 2, paragraph 0007]

It is very clear from Kohei's teaching as a whole that at the time before the drawing speed of the optical fiber 13 reaches a prescribed drawing speed (100m/min), Kohei's process uses

bare fiber measurement from outer diameter measurement device 21; while at the time after the drawing speed reaches the prescribed drawing speed (100m/min), Kohei's process uses bare fiber measurement from outer diameter measurement device 14 by switching device 21 to device 14.

Also please see Kohei's teaching [col.3, paragraph 0012 – 0015] that clearly shows the fact that only one bare fiber diameter measurement is used at any time.

Ⅳ.3. The O.A. fails to address the feature of Kohei's process and fails to recognize the fact and objective evidence that Kohei's process lacks one or more key features of the claimed present invention as listed above, when examiner cites reference Kohei and states "Kohei (JP 06-206734) is cited as being cumulative to Urruti." [O.A. p.24, L.10]

Ⅳ.4. The issue of Yoshimura 5073179, Urruti 5551967 and Kohei JP 06-206734 is one objective evidence which shows that the present invention is Unobvious, otherwise these experts would have taught the present invention features.

From Kohei's figure 1 and teaching [col. 2, paragraph 0007, col.3, paragraphs 0012-0015], it can be seen that Kohei's process is close to Yoshimura's figure 3 and teaching [col. 2, L.64-68].

The applicant very respects Yoshimura, Urruti and Kohei's inventions, and honors their advanced work for optical fiber drawing process.

At the same time, Applicant respectfully requests the PTO to honor the claimed present invention that is novel, useful and unobvious over the prior art.

V. Further Rebuttal, Arguments, Facts and Evidence

V.1. Applicant's previous responses and arguments are valid in view of the law, court decisions, MPEP policy, facts and evidence cited in the previous Replies and this Reply.

Applicant also points out that Examiner fails to response all points, arguments, facts, evidence, and cited Law, Court Decisions, Regulations and MPEP Policy in applicant's previous Replies of 10-18-2004, 4-7-2005 and 5-10-2005, especially as pointed out in 5-10-2005 Reply [p.26, L.3-22] and the above item III.13 [pp.103-105].

V.2. The Examiner's Action fails to follow MPEP 707.07(f) -- Answer All Material Traversed

MPEP 707.07(f) Answer All Material Traversed [R-1]

"Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it.

If applicant's arguments are persuasive and upon reconsideration of the rejection, the examiner determines that the previous rejection should be withdrawn, the examiner must provide in the next Office communication the reasons why the previous rejection is withdrawn by referring specifically to the page(s) and line(s) of applicant's remarks which form the basis for withdrawing the rejection. It is not acceptable for the examiner to merely indicate that all of applicant's remarks form the basis for withdrawing the previous rejection. Form paragraph 7.38.01 may be used. If the withdrawal of the previous rejection results in the allowance of the claims, the reasons, which form the basis for the withdrawal of the previous rejection, may be included in a reasons for allowance. See MPEP § 1302.14. If applicant's arguments are persuasive and the examiner determines that the previous rejection should be withdrawn but that, upon further consideration, a new ground of rejection should be made, form paragraph 7.38.02 may be used. See MPEP § 706.07(a) to determine whether the Office action may be made final." [emphasis added]

The examiner's Action fails to answer the evidences, facts, rationale or arguments in the Replies.

For example, the 2-14-2005 O.A. states "Applicant's arguments have been considered but are

moot in view of the new ground(s) of rejection" [p.11, L.6-7], however, examiner fails to specifically point out how the applicant's arguments are moot in view of the new ground(s) of rejection, especially those applicant's arguments which examiner has not addressed, and how the facts and evidence which applicant has presented can be moot.

The O.As. fails to answer the materials on pages 26-66 in the 4-7-2005 Reply which applicant submitted, as pointed out in 5-10-2005 Reply and listed above in III.13 [pp.103-105].

On the other hand, Applicant addresses all points that Examiner proposed in his Actions.

For a convenient check and review, Applicant addresses his responses in a sequence very close to the sequence of points in the O.A.

For further convenience, a table which lists the items and their respective corresponding page numbers and remarks is submitted together with this Reply.

V.3. The O.A. fails to comply with MPEP 2141 BASIC CONSIDERATIONS WHICH APPLY TO OBVIOUSNESS REJECTIONS.

From the detail and specific points presented above in section II, it can be observed that the examiner's Action fails to comply with MPEP2141, e.g., the proposed combinations as pointed out again as follows for a brief:

- **The references of Urruti in view of Yamamura do not suggest any combination** [Urruti 5551967, Yamamura 6220057].

Even if combined or modified as the O.A. proposed, their two combined processes would be inoperative, destroy both processes, be against the reference principles and objectives, and be no expectation of success, as pointed out in item II.3.3 [pp.71-74].

Even if combined or modified as the O.A. proposed, the resultant teachings would still omit one or more of applicant's claimed key features, as specifically pointed out above in section II, items II.3.2 [pp.70-71] **and II.3.3** [pp.71-74].

Thus, the O.A. does not comply with the MPEP 2141 as cited below.

Thus, the rejection based on the proposed references combination is not justified and

should be withdrawn.

- **The references of Yoshimura and Urruti do not suggest any combination** [Yoshimura 5073179, Urruti 5551967].

  Even if combined or modified as the O.A. proposed, their two combined teachings would still omit one or more claimed key features as listed above in section II, items II.2.2 [p.52] **and II.2.3** [pp.53-56].

  Urruti has cited reference Yoshimura in his specification [col. 3, lines 16-21].

  The present invention has also cited both references Yoshimura 5073179 and Urruti 5443610 (5551967 is a division from 5443610) in the Specification, e.g., [p.4, 0012, 0013; p.6, 0023; p.18, 0074].

  Thus, the O.A. does not comply with the MPEP 2141 as cited below.

  The rejection based on the proposed references combination is not justified and should be withdrawn.

- **Because of no motivation, unsuccessful combination, omitting key features, and against the reference principles and objective as listed above, therefore the proposed combination is based on impermissible hindsight vision afforded by the claimed invention.**

- MPEP 2141 **BASIC CONSIDERATIONS WHICH APPLY TO OBVIOUSNESS REJECTIONS**

  When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:

  (A) The claimed invention must be considered as a whole;

  (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;

  (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and

  (D) Reasonable expectation of success is the standard with which obviousness is determined.

  Hodosh v. Block Drug Co., Inc., 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

- In addition to the above mentioned, the O.A. fails to consider the references as a whole, but just cut words or phrases from sentences to make the assumption.

For example, two measurements in Urruti are one for bare fiber and one for coated fiber, however, the O.A. just states "Based on Applicant's definition of 'bare fiber' on page 3, the scope and content of Urruti is substantially the same as applicant" [O.A. p.15, L.10-11].

The fact is that the sentence regarding 'bare fiber' in paragraph 0003 under Section 2 Description of the Related Art is cited from Yoshimura 5073179. The term bare fiber has been well used, such as in Yoshimura 5073179, and Urruti 5443610 and 5551967, which were examined by the same Examiner.

"Bare fiber" recited in claims is a term of art in US 5073179 [Yoshimura] and 5551967 [Urruti] and it is clearly described and shown in figure 1 of the application.

For other examples, please see the O.A. and the Reply regarding Yoshimura's preform diameter factor, etc.

- The O.A. fails to comply with that "the references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention".
- Thus, the rejections based on those proposed combinations should be withdrawn.

V.4. The O.A. fails to establish a *prima facie* case of obviousness because the proposed combination of Urruti and Yamamura is inoperative, destroys the both references processes, and still misses the applicant's claimed key steps. Moreover, the proposed combination case of Yoshimura in view of Urruti, or Urruti in view of Yamamura, does not meet all three basic criteria as required by MPEP 2142.

MPEP 2142 ESTABLISHING A PRIMA FACIE CASE OF OBVIOUSNESS

> To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

V.5. Furthermore, the O.A. do not follow MPEP 2143.03 because, even as modified or combined of Harding, Urruti in view of Yamamura, or Yoshimura in view of Yamamura, or Yoshimura in view of Urruti, the resultant teachings still omit one or more of applicant's claimed features as listed above section II, items II.1.2, II.1.3, II.2.2, II.2.3, II.3.2 and II.3.3 [pp.30-34, 52-56, 70-74] .

MPEP 2143.03 All Claim Limitations Must Be Taught or Suggested

> To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

- Thus, based on *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974), the examiner has not establish *prima facie* obviousness of a claimed invention.
- Therefore, applicant submits that the rejections on these references are improper and should be withdrawn.

V.6. The rejections are in error because the O.A. fails to consider the prior art in its entirety, including disclosures that teach away from the claims. Furthermore, the rejections are improper because the O.A. combines the references Urruti and Yamamura, or Yoshimura and Yamamura, or Yoshimura and Urruti, where the references teach away from their combination. Thus, the O.A. fails to follow MPEP 2141.02.

- As pointed out above, the teaching and suggestion of Yoshimura is clearly to limit the factors including preform diameter as a condition, and has no any suggestion or motivation of measuring preform diameter in his fiber drawing process (refer to Yoshimura col.3, lines 30-39).
- In col. 3, lines 34-39, Yoshimura taught that "Thus, the present invention resides in not only limiting the distance between the outlet or a center of the drawing furnace and the measuring device for the outer diameter but also, as a whole, limiting such factors described above." The limiting factors described above include the preform diameter!
- Urruti clearly teaches adjusting the preform feed speed based on fiber drawing speed and fiber measurement, but not the preform diameter or the prefomr diameter deviations. His process also lacks the preform measurement, same as Yoshimura. [refer to fig.5, col.4, L.60-

67, col.5, L.1-7]

- Harding clearly teaches away from his col. 2, lines 54-68 and col. 3, lines 1-20 [refer to p.41].
- Yamamura of course teach away from the present invention. [refer to pp.72, 74]
- Thus, the O.A. fails to follow the **MPEP 2141.02:**

> **MPEP 2141.02 PRIOR ART MUST BE CONSIDERED IN ITS ENTIRETY, INCLUDING DISCLOSURES THAT TEACH AWAY FROM THE CLAIMS**
>
> A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

- **Thus, applicant submits that the rejections on these references are in error and should be withdrawn.**

V.7. Furthermore, the O.A. fails to follow MPEP 2145 X.D.2 because the O.A. combines Urruti and Yamamura, or Yoshimura and Yamamura, or Yoshimura and Urruti, where the references teach away from their combination. Furthermore, they are different manufacturing processes, or the combination destroys both combined processes, or they do not teach or suggest any their combination.

MPEP 2145 X.D.2 states:

> **References Cannot Be Combined Where Reference Teaches Away from Their Combination**
>
> It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983).

Thus, applicant submits that the rejections on these references combination are improper and should be withdrawn.

V.8. The proposed modification can not change the principle of operation of a reference. However, the O.A. fails to follow this rule because the proposed modification or combination changes Urruti's operation principle of second measurement after coating and no preform measurement in the process control, Yoshimura's operation principle of "as a whole, limiting such factors described above" including "a

preform diameter, structural factors of the drawing furnace ..." and no preform diameter measuring step in his process, Harding's operation principle of no preform diameter measurement and deviation for preform feeding speed control and fiber drawing control.

MPEP 2143.01 THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)

The court reversed the rejection holding the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." 270 F.2d at 813, 123 USPQ at 352.

Thus, applicant submits that the rejections based on the proposed modification or combination of the prior art by changing the principle of operation of Yoshimura are improper and should be withdrawn.

V.9. The Proposed Modification Cannot Render the Prior Art Unsatisfactory for Its Intended Purpose. However, the examiner proposed modification or combination of Urruti and Yamamura makes the both references processes destroyed and render the prior art unsatisfactory for its intended purpose of fast and quality manufacturing, then there is no suggestion or motivation to make the proposed modification. (Refer to MPEP 2143.01, 2145 Ⅲ)

- **MPEP 2143.01 THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE**

  If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

- **However, in the O.A. examiner wrongly cites MPEP 2145 Ⅲ** for his proposed inoperative combination which is without any teaching or suggestion in the prior art. Really, MPEP

2145 III case does not support inoperative combination which is of course unsatisfactory. Here, the key fact is that even as the examiner's proposed combination of two different processes physically, but the combined processes can not be run properly, and do destroy both processes and final product, and do destroy the primary reference purpose, and do change the principle of the primary reference stated in the references teachings.

- **MPEP 2145 III also states "However, the claimed combination cannot change the principle of operation of the primary reference or render the reference inoperable for its intended purpose. See MPEP § 2143.01."** [emphasis added]
- It is a fault of the O.A. to wrongly cite MPEP 2145 III against the fact and to support an inoperable combination.
- In fact, MPEP 2145 III does not support the O.A. statement of disregarding inoperativeness of the proposed combination.
- The Examiner's Action wrongly cites MPEP 2145 III to support his inoperable combination. The examiner's Action is in serious error by citing MPEP 2145 III here because MPEP 2145 III clear states that "However, the claimed combination cannot change the principle of operation of the primary reference or render the reference inoperable for its intended purpose. See MPEP § 2143.01."
- **MPEP 2145 III. ARGUING THAT PRIOR ART DEVICES ARE NOT PHYSICALLY COMBINABLE**

  "The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.... Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art." In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). See also In re Sneed, 710 F.2d 1544, 1550, 218 USPQ 385, 389 (Fed. Cir. 1983) ("[I]t is not necessary that the inventions of the references be physically combinable to render obvious the invention under review."); and In re Nievelt, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973) ("Combining the teachings of references does not involve an ability to combine their specific structures.").

  However, the claimed combination cannot change the principle of operation of the primary reference or render the reference inoperable for its intended purpose. See MPEP § 2143.01.

- **The examiner's Action intentionally or obviously omits this important part in MPEP 2143 Ⅲ should not be permitted.**

- **Thus, applicant submits that the rejections based on the proposed combination of Urruti and Yamamura, or Yoshimura and Yamamura, are improper and should be withdrawn, because the proposed modification or combination renders the prior art unsatisfactory for its intended purpose, changes the principle of operation of the primary reference, or renders the reference inoperable for its intended purpose.**

V.10. A series of issued patents as cited references further prove that different measurements in a large complex process and control are challenging and unobvious to a person having ordinary skill in the art.

Please refer to the prior art including cited Harding (1988), Yoshimura (1991), Urruti (1996), Kohei (JP 2002).

Applicant highly honors these references and recognizes their inventions. At the same time, applicant respectfully requests the PTO to recognize his novel, useful and unobvious invention as claimed.

Applicant was invited to present seminar by major optical fiber manufacturing company in the world.

Applicant respectfully requests the PTO to recognize the claimed present invention patentable.

V.11. Examiner recognized in his Office Communication – written Interview Summary of 3-15-2005 that "a superior embodiment using a specific algorithym may be patentable, but the claims are broad and are not limited to that specific algorithym".

Applicant points out that the related claims have specific limitations, such as that based on ΔD (the deviation of the preform outer diameter), $D+\Delta D$ (the preform measurement) and D (its nominal value), or two different outer diameter data sets of the bare fiber, and/or their combinations in the Claims.

The present invention includes the new patentable subject matter in optical fiber drawing process. These novel, useful and unobvious claimed physical features over the prior art as a whole include: measuring preform outer diameter, using new robust control method and new operation principles involving ΔD, $D+\Delta D$ and D, having double bare fiber measurements at two different locations before any coating device, using new operation principle including two different bare fiber diameter measurement data sets to control the preform feeding speed and fiber drawing speed. These new claimed features make new unexpected good results as stated above.

V.12. Professional Recognition – The invention has been given an award and recognition by the University of North Carolina at Charlotte. (Please see attached copy again.)

V.13. Competitive Recognition – Recently, some foreign (and non-China) company filed a patent application in China, the content of that is basically similar and close to this present invention as they recognized. They have read and checked the applicant's this patent application in China, for that the applicant applied as an international patent application in 2002 following the US PTO permission notice to this US patent application. (Please see the attached copy again.)

V.14. Some Foreign Company Intended to Purchase the Present Invention and Application, as a factor as the U.S. Supreme Court has ruled for certain "secondary considerations".

An agent company contacted the applicant on behalf of that foreign company, and said that foreign company had intended to purchase the present invention and application of the applicant. (Please see the attached copy.)

V.15. The above facts including the factual evidence of "secondary considerations" are submitted again together with arguments listed above for requesting reconsideration.

VI. Respectful Request for Reconsideration

From all of the above and the previously submitted Replies, it can be seen that the claims of the present invention are patentable over the prior art.

Therefore, Applicant respectfully requests the PTO for reconsideration.

VII. Conclusion

For all of the above reasons, applicant respectfully submits that the claims are now in proper form, and that the claims all define patentably over the prior art. Therefore applicant submits that this application is now in condition for allowance, which action he respectfully solicits.

Applicant respectfully requests the PTO to view and recognize the new, useful, unobvious and patentable merit of the claimed present invention as a whole.

VIII. Conditional Request for Constructive Assistance

Applicant has amended the claims of this application so that they are proper, definite, and define novel structure which is also unobvious.

If for any reason this application is not believed to be in full condition for allowance, Applicant respectfully requests Examiner to write an allowable claim for the present invention and the constructive assistance and suggestions, pursuant to MPEP 706.03(d) and 707.07(j) in order that undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,

Sheng-Guo Wang

704-503-0747

Sept. 6, 2005

---------- Applicant Pro Se ----------

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Tel: (704) 503-0747

Certificate of Express Mailing: I certify that on the date below this document and referenced attachments, if any, will be mailed with the U.S. Postal Service as the Express Mail – ER 543425638 US – in an envelope addressed to: "COMMISIONER FOR PATENTS, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450."

Spet. 6, 2005 _____

Sheng-Guo Wang, Applicant

	Optical Fiber Drawing Process	Measurements at different locations for fiber drawing process			Feed speed control using Preform dynamic data	Drawing speed control using Preform dynamic data	Tensor control using Preform dynamic data	Feed speed & Drawing speed control using Double Bare Fiber measurement data	New robust control method law
		Preform outer diameter	One Bare Fiber Measurement	Double Bare Fiber Measurement before coating					
The Applicant's Invention (US)	X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X		X
	X	X	X		X	X	X		X
	X	X			X	X	X		X
	X		X	X				X	X
Yamamura (JP) US 6220057	Glass Ingot manufacture (2M in furnace)								
Yoshimura (JP) US 5073179	X (1 after furnace before coating)		X						
Urruti (US) US 5551967	X (1 after furnace & 1 after coating)		X						
Harding (GB) US 4793840	X (only 1M)		X						
Kohei (JP) US 6178778	X (1 M at any time, switched from 2 locations)		X 1 M at any time						

UNCCHARLOTTE

IN RECOGNITION

OF

SHENG-GUO WANG

INVENTOR

For

UNC Charlotte Invention

Robust Diameter-Controlled Optical Fiber During Optical Fiber Drawing Process

Provisional Patent Filed: November 14, 2000

深聯商業貿易進出口代理中心

地址：廣東省深圳市蛇口工業區深聯大厦　郵編：518067
電話：0755-81597411　　數碼傳真：013926580133

王胜国同志：

我代理中心通过商业贸易进出口的同时，对于无形资产联系转让给外资公司造就了难得的机会。

我代理中心在会场上安置开放了22台宽带互联网电脑，供参加会议的企业领导专门查阅高新技术信息。

现有本省内一家外资企业向国家知识产权局申报专利，与你的专利申请“光纤抽丝过程中鲁棒直径控制的光纤”内容基本相近，你该专利申请尚未领到专利证书，但公司经理急于考虑这个冲突，有意协商购买这个技术和专利申请，有《受理通知书》可开展洽谈工作。已委托我方代理中介业务。

现征求你的意见，如你有意转让这一项专利权，你须于收到信的约十天内给我们回复电话：0755-81597411。此事由我们主任经办，主任手机：013554775259，传真：013926580133，（数码传真，普通传真机可接入）请你在电话联系务必说明该专利档案电脑编号：ＰＸ１７０８号。

你的专利资料是公开的，我方已在中国知识产权局查到你的该专利资料，意向方也有代表人阅过，当我收到你的联系，我会马上开展下一步工作，希望能得到你的配合。

我们向你方承诺：我单位在成功前不向你方收取任何费用，但在成功后，我方向你方收取成交总额的３％作为中介收入。

此致！

深联商业贸易进出口代理中心

联系人：李华清

主任：黄天成

二００四年七月八日

Shen Lian Business Trade Export & Import Agency

Address: Shen Lian Building, Shekou Industrial Zone, Shenzhen, Guangdong Zip: 518067
Tel.: 0755-81597411 Digital Fax: 013926580133

Mr. Sheng-Guo Wang:

Our Agency provides uncommon opportunities for intangible assets transfer when we are doing business exports and imports.

Our Agency has set up 22 broad-band internet-connected computers for company leaders who attend conferences to review new high-tech information.

Now there is a foreign company in our province submitting an application for a patent to the State Intellectual Property Office of PRC, that is basically similar and close to the content of your patent application "Robust diameter-controlled optical fiber during optical fiber drawing process". Your patent application has not been issued the patent certificate. However, this company manager is urgent to consider this conflict, and is willing to negotiate to purchase your this technology and patent application. With your Official Filing Receipt, it is able to start the negotiation. This company has designated our Agency to do this business.

Now we are asking for your opinion. If you have an intension to transfer this patent right, please call us at 0755-81597411in 10 days after you receive this letter. This matter is handled by our Chief Officer, his mobile phone number: 013554775259, fax: 013926580133 (this digital fax can also receive normal fax). Please indicate this patent file serial number in computer: PX 1708 when you call us.

Your patent material is open to the public. We have searched your patent material at the State Intellectual Property Office of PRC. The intended party has also reviewed your patent material. When I have got your contact, I will immediately start next stage work. I hope to have your cooperation.

We promise to you: our Agency will not charge you any costs before success, but after the success, we will charge you 3% of the total amount of the deal as an agent fee.

Sincerely,

Shen Lian Business Trade Export & Import Agency
Liaison person: Huaqing Li
Chief Officer: Tianchen Huang

July 8, 2004

(Company Stamp) **Shen Lian Business Trade Export & Import Agency**

Table 1: Item Numbering and its Corresponding Page Numbers in 9-6-2005 Reply

Item Numbering	Page Numbers	Remark
	1	Cover letter
	2-11	Amendment of Claims
	12	Remarks
I	13	Response to claim rejections – 35 USC 112
I.1	13-14	"data sets" in claims 26 & 28
I.2	14	amended
I.3	14	amended
I.4	14-15	Robust
I.5	16	"will be" → "is" & explanation (Claim 21)
I.6	16	antecedent – amended (Claim 22)
I.7	16	antecedent – amended (Claim 24)
I.8	16-17	antecedent – amended (Claim 25)
I.9	17	locations – positions (Claim 26)
I.10	17	antecedent – amended (Claim 30)
I.11	17	antecedent – amended (Claim 32)
I.12	17-22	"based on"
I.13	22-23	"historical measurement data"
II	24	Response and rebuttal to claims rejection – 35 USC 103
II.1	26	Claims 21-22 & 24-25 patentable over Harding
II.1.1	26-30	Scope and contents
II.1.2	30-32	Differences
II.1.3	32-34	Ordinary skill – unobvious, no motivation
II.1.4	34-42	Objective evidence – unobviousness
II.1.5	42-43	O.A. distorts the Harding – principle, robust, etc.
II.1.6	43-44	O.A. p.9, L.10-18 in error
II.1.7	44	Harding's lack of claimed steps & control principle
II.1.8	44-45	No teaching, suggestion & motivation
II.1.9	45	Hindsight

II.3.4	74-79	Objective evidence
II.3.5	79	O.A. p.16, L.13-14 in error on Claim 33 – equation
II.3.6	79-80	O.A. L.15-16 in error – inherently based on all other
II.3.7	80	O.A. [p.16, L.16-19; p.17, L.1] fails
II.3.8	80	O.A. p.17, L.1-2 in error – based on
III	81	Response to "Response to Arguments" of O.A.
III.1	81	Applicant's responses in prior Replies are valid
III.2	81-82	O.A. p.17, L.14-15 in error
III.3	82-84	O.A. p.17, L.20-p.18, L.1-2 in error & fails to ascertain differences
III.4	84-85	Letter and numbering
III.5	85-87	O.A. p.19, L.9-12 – facts, sci., eng. & tech.
III.6	87-91	Scope & contents, differences [O.A. pp.19, 20, 21]
III.7	91-98	"based on" [O.A. pp.20-21, 23]
III.8	98-99	Combination is inoperative, no expectation of success [O.A.p.21, L21-22]
III.9	100-102	O.A. p.22, L.8-17 – facts, materials and evidences
III.10	102-103	O.A. p.22, L.22-24 – claims and algorithms
III.11	103	O.A. p.23, L.19-21 – historical measurement data
III.12	103	O.A. p.24, L.1-3 – invention matter
III.13	103-105	O.A. p.24, L.4-7 – fails to answer
IV	106	Unobvious and Patentable over Kohei – JP 06-206734
IV.1	106	Kohei's process lacks claimed key features
IV.2	106-107	Kohei's uses only one bare fiber measurement at any time
IV.3	107	O.A. p.24, L.10 fails to address features, differences
IV.4	107	Unobvious
V	108	Further rebuttal, arguments, facts and evidence
V.1	108	Applicant's previous responses and arguments are valid
V.2	108-109	O.A. fails to follow MPEP 707.07(f)
V.3	109-111	O.A. fails to follow MPEP 2141
V.4	111	O.A. fails to establish a prima facie case of obviousness – MPEP2142
V.5	112	O.A. does not follow MPEP 2143.03

Table 2: Item Numbering and its Corresponding Page Numbers in 5-10-2005 Reply

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I. 1.2 ~ I.1.3	15	A.1.1.ii - iii
I. 2	15	A.1.2
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I. 2.2	16	
I. 2.3	16 – 18	
I. 2.4	18 – 19	
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I. 2.7	21 – 22	
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I. 2.10	23 – 24	
I. 2.11	24 – 26	
I. 2.12	26	
Brief summary – items in 4-7-2005 Reply	26	
A.3.8	26	
A.3.9	26 – 27	
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A.4.1 ~ A.4.7	27	
A.4.8	27 – 28	
B	28	
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B.2	28	
B.2.1	28	
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B.3.1	30-31	
B.3.2 ~ B.3.8	31	
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C	32	
C.1 ~ C.2	32	
C.2.1	32	
C.2.2 ~ C.2.7	33	
C.3	33	
C.3.1	33	

Table 3: Item lettering/Numbering and its Corresponding Pages in 4-7-2005 Reply

Item Lettering/Numbering	Page Numbers	Remark
I	12	Response to claim rejections – 35 USC 112
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I.4 ~ I.7	13	
II	14	Brief summary of references & differences of present invention
Present invention	14 – 15	
Yoshimura	15	
Urruti	15 – 16	
Yamamura	16	
Kenmochi	16	
III	17	Response to Claim Rejections related to 35 USC 102 / 103
III. A	17	Claims 21-22 and 24-25
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A.1.2	17 – 19	
A.1.3	19 – 20	
A.2	20 – 23	No teaching, suggestion, or motivation
A.3	23	Claim 21
A.3.1	23	
A.3.2	23 – 24	
A.3.3	24 – 25	
A.3.4 ~ A.3.5	25	
A.3.6	25 – 26	
A.3.7	26 – 27	
A.3.8	27 – 28	
A.3.9 ~ A.3.10	28	
A.3.11	28 – 29	
A.4	29	Claims 22 and 24-25
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III. B	34	Claims 26 and 28
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IV	61	Respectful request for reconsideration
V	61	Conclusion
V I	62	Conditional request for constructive assistance